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TRANSACTIONS
OF THE
Maine State Pomological Society,
FOR THE YEAR 1887.

Including the Proceedings of the Winter Meeting held in Town Hall,
New Gloucester, February 22, 23 and 24, 1888.



EDITED BY THE SECRETARY,
D. H. KNOWLTON.

AUGUSTA:
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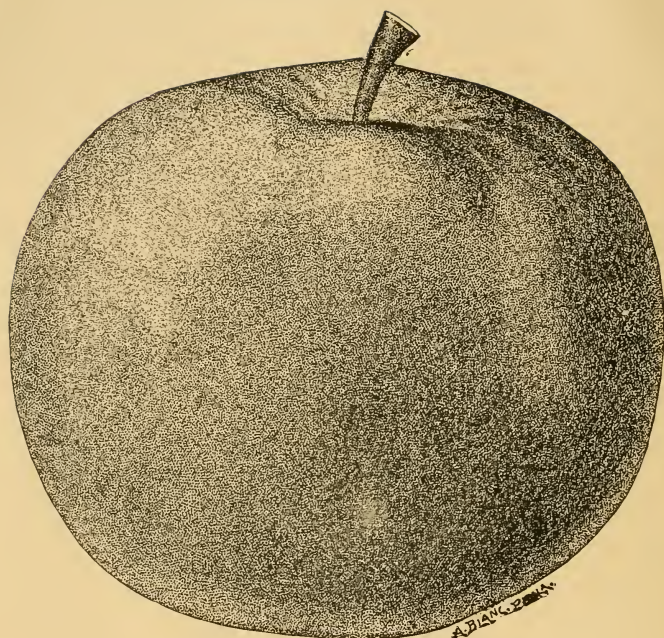
1887

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DUDLEY'S WINTER.

Originated by J. W. Dudley, Castle Hill, Aroostook County, from seeds of the Duchess of Oldenburg. Large, regular in form, smooth, slightly striped with pale red. Mild acid, fairly rich. Winter. Perfectly hardy.



Revision of Society's Fruit Catalogue.

For the purpose of making a careful revision of our Fruit Catalogue the following committee were chosen for that purpose at the last winter meeting of the society: D. H. Knowlton, Farmington; D. J. Briggs, South Turner; D. P. True, Leeds Centre; Henry McLaughlin, Bangor and E. W. Dunbar, Damariscotta. The committee are now engaged in the work of gathering information from different parts of the State. It is the intention of the committee to ascertain from fruit growers what kinds of fruit thrive the best in the State.

The committee also solicit information regarding the new varieties of fruit in order that the people of the State may know where to obtain reliable information about them.

A list of questions have been sent to fruit growers in various parts of the State. Should the reader be able to furnish information it will be gratefully received by the committee.

It is hoped to have the Fruit Catalogue ready for publication at an early day.

D. H. K.

MAINE STATE POMOLOGICAL SOCIETY.

Transactions for the Years 1887-8.

As introductory to the present volume of proceedings, justice to the society compels us to state that neither the present secretary or his predecessor was in office during the entire period covered by the transactions. The records, however, are complete and in excellent condition, but necessarily many items of interest to Maine fruit-growers are omitted, inasmuch as they came only to the knowledge of the former secretary, who has so ably edited the transactions of the society during the several years he held the office.

It is an object of congratulation that our society has been able to do so much for the promotion of the interests which it represents. Since its organization fruit-growing in Maine has developed into one of the most profitable of all the various industries connected with agriculture. Little by little the society has taught the people, first the importance and possibilities of fruit-growing in Maine, and then, through the medium of its papers and discussions, from actual experience, it has been the most reliable and progressive teacher of the science of fruit-growing. Then, again, at its annual exhibitions which have grown in importance and magnitude it has spread out before the people of the State such tables of fruit as can be found in few other States. These exhibitions, quite as much as any other work of the society, have illustrated just what the society is doing. Largely through its influence many a hillside has been covered with apple trees, and the garden acre has increased in importance because of the great abundance and variety of fruit it affords the families of thousands of our people.

The society has also done very much to encourage the culture of flowers, and some of the most interesting papers read at our winter meetings have been upon flower culture.

The society is not large, neither is it possessed of large resources. As will be seen from the treasurer's report its receipts are comparatively small when the magnitude of the work it is doing is correctly measured. It might profitably do more if its resources were larger, and possibly the time may come when its exhibitions will be more complete and all its work made more effective by the use of ample means.

OFFICERS FOR 1888.

President.

CHARLES S. POPE, Manchester.

Vice Presidents.

D. J. BRIGGS, South Turner.

O. C. NELSON, New Gloucester.

Secretary.

D. H. KNOWLTON, Farmington.

Treasurer.

A. S. RICKER, Turner.

Executive Committee.

The President and Secretary, *ex-officio* ; L. H. Blossom, Turner Centre ; J. W. True, New Gloucester ; H. W. Brown, Newburg.

Trustees.

Androscoggin County,	J. A. Briggs, Turner.
Aroostook	" E. W. Merritt, Houlton.
Cumberland	" S. R. Sweetser, Cumberland Centre.
Franklin	" M. C. Hobbs, West Farmington.
Hancock	" Charles G. Atkins, Bucksport.
Kennebec	" E. A. Andrews, Gardiner.
Knox	" Elmas Hoffses, Warren.
Lincoln	" H. J. A. Simmons, Waldoboro'.
Oxford	" C. H. George, So. Paris.
Penobscot	" J. E. Bennoch, Orono.
Piscataquis	" H. L. Leland, E. Sangerville.
Sagadahoc	" H. S. Cary, Topsham.
Somerset	" James S. Hoxie, North Fairfield.
Waldo	" D. B. Johnson, Freedom.
Washington	" Nelson S. Allen, Dennysville.
York	" Luther S. Moore, Limerick.

Committee on Nomenclature.

Hon. Z. A. Gilbert, North Greene ; W. P. Atherton, Hallowell ; D. P. True, Leeds Centre.

Committee on New Fruits.

D. H. Knowlton, Farmington ; T. M. Merrill, New Gloucester ; L. H. Blossom, Turner.

MEMBERS OF THE SOCIETY.

NOTE—Any errors or changes of residence should be promptly reported to the Secretary. Members will also confer a favor by furnishing the Secretary with their full Christian names where initials only are given.

LIFE MEMBERS.

Andrews, A. Emery	Gardiner	Harris, N. W	Auburn
*Atherton, H. N	Hallowell	Harris, William M	"
Atherton, W. P	"	*Hersey, T. C	Portland
Atkins, Charles G	Bucksport	Hopkins, Miss S. M	Gardiner
Atwood, Fred	Winterport	Hoxie, James S	North Fairfield
Bennoch, John E	Orono	Hobbs, M. C	West Farmington
Boardman, Samuel L	Augusta	Hoyt, Mrs. Frances	Winthrop
Briggs, D. J	South Turner	Ingalls, Henry	Wiscasset
Briggs, John	Turner	*Jewett, George	Portland
Burr, John	Freeport	Johnson, Isaac A	Auburn
Carter, Otis L	Etna	Jordan, Francis C	Brunswick
Chase, Henry M	North Yarmouth	Knowlton, D. H	Farmington
Chase, Martin V. B	Augusta	Low, Elijah	Bangor
*Clark, Eliphalet	Portland	Low, S. S	"
Cole, Horatio G	Boston, Mass.	Lapham, E. A	Pittston
Crafts, Moses	Auburn	McLaughlin, Henry	Bangor
*Crosby, William C	Bangor	*Metcalf, M. J	Monmouth
Dana, Woodbury S	Portland	Moore, William G	"
DeRocher, Peter	Bradentown, Fla.	Moor, F. A	Waterville
Dirwanger, Joseph A	Portland	Morton, J. A	Bethel
Dunham, W. W	North Paris	Morton, William E	Portland
Dyer, Milton	Cape Elizabeth	*Noyes, Albert	Bangor
*Emerson, Albert	Bangor	Perley, Chas. I ... Seward's (Vassalboro')	
Farnsworth, B. B	Portland	Pope, Charles S	Manchester
Frost, Oscar F	Monmouth	Pulsifer, D. W.	Poland
*Gardiner, Robert H	Gardiner	Purinton, E. F	West Farmington
Gardiner, Robert H	Boston, Mass.	*Richards, F. G	Gardiner
George, C. H	Hebron	Richards, John T	"
Gilbert, Z. A	North Greene	Ricker, A. S	Turner
*Godfrey, John E	Bangor	*Richardson, J. M	Gardiner
Hanscom, John	Saco	Roak, George M	Auburn
Harlow, S. C	Bangor	Robinson, Henry A	Foxcroft
*Harris, N. C	Auburn	Rolfe, Samuel	Portland

*Deceased.

LIFE MEMBERS—CONCLUDED.

Sawyer, Andrew S.....	Cape Elizabeth	*Taylor, Joseph.....	Belgrade
Sawyer, George B.....	Wiscasset	Taylor, Miss L. L....	(Lakeside) Belgrade
Shaw, Stillman W.....	West Auburn	Thomas, William W., Jr.....	Portland
Simmons, H. J. A.....	Waldoboro'	Tilton, William S.....	Boston, Mass.
*Smith, Alfred.....	Monmouth	True, Davis P.....	Leeds Center
Smith, Henry S.....	"	Varney, James A....	The Dalles, Oregon
Starrett, L. F.....	Warren	Vickery, James.....	Portland
*Stetson, Isaiah.....	Bangor	Vickery, John.....	Auburn
Stilphen, Asbury C.....	Gardiner	Wade, Patrick.....	Portland
Stanley, Charles.....	Winthrop	*Weston, James C.....	Bangor
Stanley, O. E.....	"	Wharff, Charles S.....	Gardiner
Strout, S. F.....	West Falmouth	Whitney, Edward K.....	Harrison
Strattard, Mrs. A. B....	Monroe	Woodman, George W.....	Portland
Sweetser, S. R.....	Cumberland Center		

*Deceased.

ANNUAL MEMBERS FOR 1887.

Baker, John C.....	Lewiston	Johnson, Henry.....	Turner
Bartlett, M. E....	East Dixmont	Johnson, Mrs. James.....	Auburn
Blossom, G. W.....	Turner	Judkins, H. P.....	Chesterville
Blossom, Leander H.....	Turner Centre	Keith, W. H.....	Winthrop
Brown, Henry W.....	Newburg	Keith, Walter L....	"
Butler, Alonzo.....	Union	Kenniston, E. H.....	Simpson's Corner
Carey, Henry S.....	Topsham	King, S. M.....	South Paris
Carpenter, James M....	Pittston	Lombard, T. M.....	Auburn
Chase, George C.....	Lewiston	Manson, Arthur.....	East Dixmont
Chase, George M.....	"	Merrill, I. C.....	Lewiston
Chipman, A. B.....	New Gloucester	Merrill, T. M.....	West Gloucester
Colby, Mrs. D. H.....	Lewiston	Nelson, O. C.....	Upper New Gloucester
Cook, Silas W.....	"	Nowell, F. E.....	Fairfield
Douglass, O. G.....	"	Penley, Mrs. A. W.....	Auburn
Duntun, John.....	"	Perkins, L. J.....	Portland
Espionett, B.....	"	Prince, Rufus.....	South Turner
Grant, Mrs. Benson.....	"	Ring, Miss Abbe E....	Richmond
Gurney, L.....	Hebron	Ring, Miss Cora E....	"
Harmon, G. H.....	Auburn	Robbins, Mrs. M. L.....	Winthrop
Haskell, Mrs. W. S.....	Turner	True, J. W.....	New Gloucester
Hawkins, M. P.....	Auburn	Waterman, I. T.....	East Auburn
Hibberd, C. H.....	Lewiston	Wharff, W. R.....	Gardiner
Hoyt, Mrs. Helen.....	Winthrop	Wright, Fred.....	Bath

ANNUAL MEMBERS, 1888.

Averill, David C.....	Temple	Merrill, T. M.....	West Gloucester
Berry, M. B.....	Mew Gloucester	Nelson, O. C.....	Upper "
Chandler, S. H. C.....	"	True, John W.....	New "
Davis, Jacob L.....	Upper Gloucester	Ward, John H.....	" "
Fogg, Chas. N.....	New "	Whittier, Phineas.....	Farmington Falls
Hackett, E. C.....	West Gloucester		

D. H. KNOWLTON, *Treasurer*,

IN ACCOUNT WITH MAINE STATE POMOLOGICAL SOCIETY, FOR THE
YEAR 1887.

Dr.

Cr.

To cash in treasury Dec. 31, 1886	\$81 51	By paid secretary's salary.....	\$100 00
Loan, People's Trust Co.,		" expense.....	108 50
Farmington	350 00	" clerk.....	18 50
State Treasurer, bounty for		Treasurer's expense.....	15 45
1886	500 00	Executive committee's	
Life members' fees.....	30 00	expense.....	86 56
Annual members' fees.....	45 00	Stationery, printing and	
State Agricultural Society...	450 00	binding	64 63
Interest on permanent fund..	13 78	State Fair expense	1 50
Balance due treasurer	2 56	Interest	11 83
		State Ag'l Society for	
		members	5 00
		Permanent fund	7 38
		Note, People's Trust Co.,	
		Farmington.....	300 00
		Note, Wiscasset Savings	
		Bank	200 00
		Premiums, balance 1886,	1 00
		Premiums in full for	
		1887	552 50
	<u>\$1472 85</u>		<u>\$1472 85</u>

FINANCIAL CONDITION OF THE SOCIETY DEC. 31, 1887.

<i>Assets.</i>		<i>Liabilities.</i>	
Amount due from State Treasurer, bounty for 1887.....	\$500 00	Amount due on loan, People's Trust Company, Farmington..	\$350 00
Property owned by Society, (estimated)	150 00	Amount due on orders not paid..	27 63
Am't on deposit in the Wiscasset Savings Bank to credit of permanent fund	351 78	Amount due treasurer.....	2 56
Balance due from State Agricultural Society, 1886	45 00		
	<u>\$1046 78</u>		<u>\$380 19</u>

PERMANENT FUND.

Dr.		Cr.	
To amount on deposit to credit of fund, Dec. 31, 1886....	\$344 40	By fees of 88 members to Dec. 31, 1886	\$880 00
Amount deposited in 1887...	7 38	Fees of 3 members during 1887	30 00
Balance due fund	558 22		
	<u>\$910 00</u>		<u>\$910 00</u>

D. H. KNOWLTON, *Treasurer*.

FARMINGTON, Feb. 2, 1888.

The foregoing accounts of the Treasurer have been examined and found correct.

CHAS S. POPE,
L. H. BLOSSOM, } *Executive Committee.*
J. W. TRUE.

NEW GLOUCESTER, Feb. 24, 1888.

Maine State Pomological Society.

Report of the Fifteenth Annual Exhibition Held in
Lewiston, September 6, 7, 8 and 9, 1887.

Early in the season the executive committee of our society met with the trustees of the Maine State Agricultural Society, and arrangements were made for a joint exhibition. The terms agreed upon were carried out in good faith by both parties and accordingly the exhibition was held in the exhibition hall on the State Fair Park in Lewiston, September 6, 7, 8 and 9, 1887.

The date for holding the exhibition was too early for a large display of apples, and the condition of the fruit in the State was such that the exhibit in quality was hardly up to our usual standard of excellence. The exhibit however was very good, especially of pears which were large and of excellent quality.

It is to be regretted that several counties were not represented on the exhibition tables. Aroostook, Hancock, Lincoln, Piscataquis and Washington counties made no collective exhibits, which was a matter of general regret, as many were hoping to find fruit from all parts of the State.

It is a cause of regret among our fruit growers that the fruit on exhibition showed unmistakably the increase of the apple maggot (*Trypeta pomonella*) in the State. The fruit showing the presence of the maggot was mostly of the early varieties, and of these the sweet and sub-acid varieties were the most affected. The insect seems to shun the acid fruits. Some of the winter apples also showed the presence of the insects. In some parts of York, Cumberland, Sagadahoc, Kennebec and Androscoggin counties the insect has already become a great pest, and its increase may well be regarded with alarm. So little is known of the insect and its habits

that as yet no means for controlling its ravages have been discovered. Some of our more advanced fruit growers are of the opinion that spraying the trees with arsenical preparation will hold them in check. Other fruit growers are feeding the fruit to the stock, hoping in this way to control its ravages.

The floral exhibit was large and arranged with excellent taste. The greenhouse exhibits made by John Burr of Freeport and G. M. Roak of Auburn were large and their respective displays were made in the most artistic manner.

In several cases the committees of award expressed preferences for exhibits where no premiums were offered by the society. These do not appear in the report as published.


The date of the exhibition was so early in the autumn it was not expected there would be any display of open air grapes. From several towns, however, there were very good exhibits which the committee deemed worthy of premiums. The general rules, and list of premiums as awarded follow.

GENERAL RULES OF THE EXHIBITION.

1. The general regulations of the joint exhibition will govern this department, as far as applicable thereto, and except as herein otherwise provided.

2. Entries may be made at the office of the Secretary, in Augusta, personally or by letter, until September 3d, and after that at the Exhibition Building at the Park, up to and including the first day of the exhibition, Tuesday, September 6th.

3. Exhibitors are requested to present full and accurate lists of the varieties of fruit or other articles to be entered; and to specify the premium for which each article is entered; also to affix their names and post-office addresses, so that the same may be correctly transferred to the books and exhibition cards.

 Persons intending to make entries will confer a special favor by sending lists of the same to the Secretary at an early day.

4. All fruits and flowers offered for premiums must have been grown by the exhibitor, and any violation of this rule will debar or forfeit the premium. Specimens offered for *exhibition only*, by others than the growers, must in all cases have the name of the grower affixed, if known.

5. All fruits and flowers exhibited must, as far as possible, be correctly named according to the standard nomenclature adopted by the Society, and it will be the duty of the standing committees of the Society to examine labels and correct all errors in nomenclature during the exhibition.

6. Where a certain number of specimens or varieties, or a definite quantity of any article, is required by the schedule, exhibitors should conform to such requirement; and larger quantities will not be admitted except by special arrangement with the Executive Committee, having reference to economy of space and the symmetry of exhibition.

7. Dishes and labels for the exhibition of fruits, and phials and stands for cut flowers, will be furnished by the Society, and no others will be admissible.

8. Exhibitors must see to the delivery of their contributions, and will be required to put them *in the places designated for them*. After the articles are arranged they will be under the exclusive charge of the Society, and the owners will not have liberty to remove them until the exhibition is closed. All reasonable precautions will be taken for the safe keeping of articles on exhibition after their arrival and arrangement upon the tables, but the Society will not be responsible for any loss or damage that may occur.

9. No premium will be awarded merely for want of competition, nor unless the article exhibited is worthy of it; and the committees are authorized to withhold the first and award the second or any subsequent premium, or none, at their discretion, according to merit. They are also to withhold all premiums from any articles not exhibited according to the rules, or when unfair practice has been attempted by the exhibitor.

10. The committees are authorized to recommend gratuities for any new or rare fruits, flowers, plants, or articles of merit for which no premiums have been offered.

11. When a specimen is presented for identification, the exhibitor shall communicate all the information he possesses as to the origin and local appellation.

12. No member of any of the committees for awarding premiums shall, in any case, vote or decide respecting an award for which such member may be a competitor, or therein have an interest; but in such case such member shall temporarily vacate his place upon the committee.

13. All premiums awarded will be payable by the Treasurer in sixty days after the close of the exhibition: *subject, however, to the following conditions and limitations, viz:*

1st.—The Society guarantees to pay premiums and gratuities to the amount of \$500, but reserves the right, if more than that amount is awarded, to make such a *pro rata* reduction as will reduce the whole amount payable to that sum.

2d.—All premiums not applied for before the first day of January, 1888, shall revert to the Society.

3d.—The Society's premiums are open for competition to all persons residing in the State; but when premiums and gratuities exceeding \$1.00 and less than \$20.00 are awarded to a person not a member of the Society, the fee for membership will be deducted therefrom; and when premiums and gratuities amounting to \$20.00 or more are awarded to any person not a life member of the Society, the fee for life membership will be deducted therefrom; and in either case certificates of membership will be issued accordingly.

List of Premiums Awarded at the Annual Exhibition.

Class I—APPLES.

FIRST DIVISION.

RULES. Entries for all premiums in this division must consist of five specimens of each variety exhibited, and (except Nos. 18, 19, 20 and 21) of at least twenty correctly named varieties, and not more than forty. Entries for premiums Nos. 18 and 19 must be separate and distinct collections, not embracing any other collection or specimens, and in awarding the premiums regard will be had both to the quality of the specimens and the value of the varieties exhibited.

By "named varieties" is meant such as are named and described in some standard work on pomology, or have been named and approved by some national or state horticultural society.

In adopting 20 as the number of varieties required in these collections (1 to 17), the society does not intend to encourage the multiplication of varieties; and the committee will be instructed, in awarding the premiums, to have regard to *quality* and *value* rather than to the number of varieties, and will be authorized to recommend gratuities for meritorious collections embracing less than the number of varieties required as above.

AWARDS. For best general exhibition of apples, grown by the exhibitor in any part of the State: Miss L. L. Taylor, Lakeside, \$12.00; W. R. Wharff, Gardiner, \$8.00; J. Pope & Son, Manchester, \$5.00.

Best general exhibition of apples grown by the exhibitor in Androscoggin county: D. J. Briggs, South Turner, \$8.00; L. H. Blossom, Turner Center, \$6.00; D. P. True, Leeds Center, \$4.00.

For the same in Cumberland county: S. R. Sweetser, Cumberland Center, \$8.00.

For the same in Franklin county: E. F. Purington, West Farmington, \$8.00; H. P. Judkins, Chesterville, \$6.00.

For the same in Kennebec county: C. I. Perley, Seward's, \$8.00; R. H. Gardiner, Gardiner, \$6.00.

For the same in Knox county: Alonzo Butler, Union, \$8.00.

For the same in Oxford county: C. H. George, Hebron, \$8.00; Lemuel Gurney, \$6.00; S. M. King, South Paris, \$4.00.

For the same in Penobscot county: H. W. Brown, Newburg, \$8.00; J. E. Bennoch, Orono, \$6.00; E. H. Kenniston, Simpson's Corner, \$4.00.

For the same, Sagadahoc: Fred Wright, Bath, \$8.00; H. S. Cary, Topsham, \$6.00.

For the same, Somerset county: F. E. Nowell, Fairfield, \$8.00; J. S. Hoxie, North Fairfield, \$6.00.

For the same, Waldo county: Arthur Mansur, East Dixmont, \$8.00; M. E. Bartlett, East Dixmont, \$6.00.

For the best five varieties of autumn apples: S. W. Shaw, Auburn, \$3.00; C. H. George, Hebron, \$2.00; S. R. Sweetser, Cumberland, \$1.00.

For the best five varieties of winter apples: D. J. Briggs, South Turner, \$3.00; F. E. Nowell, Fairfield, \$2.00; C. H. George, \$1.00.

For the best eight varieties for home use: C. H. George, Hebron, \$3.00; S. W. Shaw, Auburn, \$2.00; S. R. Sweetser, Cumberland, \$1.00.

For best collection of crab apples: I. C. Merrill, Lewiston, \$1.00; E. H. Kenniston, Simpson's Corner, 50c.

SECOND DIVISION.

RULES. Entries for premiums in this division must consist of from five to ten specimens, according to size, of each variety exhibited, and must be separate specimens from any exhibited in the first division.

AWARDS. American Golden Russet: H. P. Judkins, \$1.00; I. T. Waterman & Son, 50c.

Baldwin: C. H. George, \$1.00; D. W. Pulsifer, 50c.

Benoni: S. R. Sweetser, \$1.00; F. E. Nowell, 50c.

Black Oxford: D. W. Pulsifer, \$1.00; Rufus Prince, 50c.

Dean: Miss L. L. Taylor, \$1.00; J. E. Bennoch, 50c.

Duchess of Oldenburg: J. Pope & Son, \$1.00; N. W. Harris, 50c.

Early Harvest: C. H. George, \$1.00.

Early Strawberry: James Bickford, 50c.

Fall Harvey: H. P. Judkins, \$1.00; C. H. George, 50c.

Fall Pippin: R. H. Gardiner, 50c.

Fameuse: I. T. Waterman & Son, \$1.00; J. E. Bennoch, 50c.

Franklin Sweet: G. W. Blossom, \$1.00; C. I. Perley, 50c.

Garden Royal: C. I. Perley, \$1.00; E. F. Purington, 50c.

Gravenstein: I. T. Waterman & Son, \$1.00; J. Pope & Son, 50c.

Grimes' Golden: J. S. Hoxie, \$1.00; J. E. Bennoch, 50c.

Hightop Sweet: E. F. Purington, \$1.00; S. M. King, 50c.

Hubbardston Nonesuch: J. W. True, \$1.00; Miss L. L. Taylor, 50c.

Hunt Russet: D. P. True, \$1.00; Master Walter L. Keith, 50c.

Jewett's Fine Red: F. E. Nowell, \$1.00; S. R. Sweetser, 50c.

King of Tompkins County: C. I. Perley, \$1.00; F. E. Nowell, 50c.

King Sweeting: E. F. Purington, \$1.00; Miss L. L. Taylor, 50c.

Large Yellow Bough: Walter L. Keith, \$1.00; E. F. Purington, 50c.

Moses Wood: C. I. Perley, \$1.00; Miss L. L. Taylor, 50c.

Mother: S. R. Sweetser, \$1.00; J. W. True, 50c.

Northern Spy: M. C. Hobbs, \$1.00; S. R. Sweetser, 50c.

Orange Sweet: I. T. Waterman & Son, \$1.00.

Peck's Pleasant: J. S. Hoxie, \$1.00; R. H. Gardiner, 50c.

Pomme Royale: C. H. George, \$1.00.

Porter: D. W. Pulsifer, \$1.00; E. G. Woodside, 50c.

President: L. H. Blossom, \$1.00; I. T. Waterman & Son, 50c.

Red Astrachan: E. H. Kenniston, \$1.00; C. I. Perley, 50c.

Red Canada: R. H. Gardiner, \$1.00; C. H. George, 50c.

Rhode Island Greening: C. H. George, \$1.00; W. L. Keith, 50c.

Rolfe: S. R. Sweetser, \$1.00.

Roxbury Russet: D. W. Pulsifer, \$1.00; C. I. Perley, 50c.

Stark: L. H. Blossom, \$1.00.

Sops of Wine: M. C. Hobbs, \$1.00; L. H. Blossom, 50c.

Somerset: Miss L. L. Taylor, \$1.00; F. E. Nowell, 50c.

Starkey: C. I. Perley, \$1.00.

Talman Sweet: H. P. Judkins, \$1.00; D. P. True, 50c.

Tetofsky: J. S. Hoxie, \$1.00; L. H. Blossom, 50c.

Wagener: N. W. Harris, \$1.00; T. M. Lombard, 50c.

- Wealthy: S. R. Sweetser, \$1.00; Thurston Lombard, 50c.
 William's Favorite: Miss L. L. Taylor, \$1.00; I. T. Waterman & Son, 50c.
 Winthrop Greening: F. E. Nowell, \$1.00; W. L. Keith, 50c.
 Yellow Bellflower: R. H. Gardiner, \$1.00; D. H. Knowlton, 50c.
 Crab Apples: T. M. Lombard, \$1.00; L. Gurney, 50c.
 Fall Orange: S. M. King, \$1.00.
 Ben Davis, J. W. True, \$1.00.

Class II.—PEARS.

For best general exhibition of pears: L. J. Perkins, Portland, \$10.00; John Dunton, Lewiston, \$8.00; C. I. Perley, Seward's, \$5.00.

Best five autumn varieties: G. C. Chase, \$3.00; S. W. Shaw, \$2.00.

Best single autumn variety: D. P. True, \$2.00; J. E. Bennoch, \$1.00.

Best single winter variety: J. E. Bennoch, \$2.00; D. P. True, \$1.00.

- Bartlett: T. M. Lombard, \$1.00; C. H. Hebbard, 50c.
 Belle Lucrative: W. L. Keith, \$1.00; S. Rolfe, 50c.
 Beurre d' Anjou: G. W. Blossom, \$1.00; Rufus Prince, 50c.
 Beurre Bosc: S. Rolfe, \$1.00.
 Beurre Hardy: D. P. True, \$1.00.
 Beurre Superfin: S. Rolfe, \$1.00; D. P. True, 50c.
 Beurre Clairgeau: S. Rolfe, \$1.00; G. W. Blossom, 50c.
 Beurre Diel: S. Rolfe, \$1.00; D. J. Briggs, 50c.
 Buffum: S. W. Shaw, \$1.00; D. P. True, 50c.
 Clapp's Favorite: D. J. Briggs, \$1.00; John Dunton, 50c.
 Doyenne Boussock: S. Rolfe, \$1.00; C. I. Perley, 50c.
 Duchesse d' Angouleme: G. C. Chase, \$1.00; S. W. Cook, 50c.
 Eastern Belle: J. E. Bennoch, \$1.00; J. S. Hoxie, 50c.
 Flemish Beauty: I. T. Waterman & Son, \$1.00; E. F. Purington, 50c.
 Glout Morceau: D. J. Briggs, \$1.00.
 Goodale: Miss L. L. Taylor, \$1.00; G. W. Blossom, 50c.
 Howell: S. Rolfe, \$1.00; Rufus Prince, 50c.

- Lawrence: John Dunton, \$1.00; G. W. Blossom, 50c.
Louise Bonne de Jersey: G. C. Chase, \$1.00; J. E. Bennoch, 50c.
Marie Louise: S. Rolfe, \$1.00.
Nickerson: J. E. Bennoch, \$1.00; H. P. Judkins, 50c.
Seckel: S. W. Shaw, \$1.00; D. J. Briggs, 50c.
Sheldon: W. L. Keith, \$1.00; Miss L. L. Taylor, 50c.
Swan's Orange: S. W. Shaw, \$1.00; J. E. Bennoch, 50c.
Souvenir du Congres: S. Rolfe, \$1.00; L. H. Blossom, 50c.
Urbaniste: S. Rolfe, \$1.00.
Vicar of Winkfield: S. W. Cook, \$1.00.

Class III.—GRAPES.

For best exhibition grown with artificial heat: J. C. Baker, Lewiston, \$6.00.

Best cluster Black Hamburg, Wilmot's Hamburg or Victoria Hamburg, J. C. Baker, \$1.00.

White Muscat: J. C. Baker, 50c.

Muscat Hamburg: J. C. Baker, 50c.

White Chasselas: J. C. Baker, \$1.00

Lady Downes: J. C. Baker, \$1.00.

Buchland Sweet Water: J. C. Baker, \$1.00.

White Nice: J. C. Baker, \$1.00.

Red Chasselas: J. C. Baker, 50c.

Chasselas Musque: J. C. Baker, \$1.00.

Hartford Prolific: J. S. Hoxie, \$1.00.

Moore's Early: J. S. Hoxie, \$1.00; L. Gurney, 50c.

Lindley: J. S. Hoxie, \$1.00.

Concord: Henry Johnson, 50c.

Delaware: J. S. Hoxie, \$1.00; E. F. Purington, 50c.

Blood's Seedling: E. F. Purington, \$1.00; J. W. True, 50c.

August Pioneer: C. I. Perley, 50c.

Class IV.—PLUMS.

For best general exhibition, John Dunton, Lewiston, \$6.00.

Best single variety: M. P. Hawkins, \$2.00; D. P. True, \$1.00.

Green Gage : E. F. Purington, \$1.00.
Yellow Gage : F. E. Nowell, \$1.00.
Coe's Golden Drop : G. C. Chase, \$1.00.
Yellow Egg : L. Gurney, \$1.00.
Lombard : I. T. Waterman & Son, \$1.00 ; I. C. Merrill, 50c.
Magnum Bonum : M. P. Hawkins, \$1.00.
Washington : E. F. Purington, \$1.00.
Smith's Orleans : E. F. Purington, \$1.00.

Class V.—MISCELLANEOUS.

For best peck of cultivated cranberries : M. E. Bartlett, East Dixmont, \$2.00 ; Henry Johnson, Turner, \$1.00.

For best sample of nursery apple trees : I. C. Merrill, Lewiston, \$2.00 ; D. J. Briggs, South Turner, \$1.00.

For best nursery grape vines : C. I. Perley, Seward's, \$1.00 ; D. J. Briggs, 50c.

For best variety of canned fruits, preserves, pickles, made and put up by the exhibitor : Mrs. Benson Grant, Lewiston, \$3.00 ; Mrs. James A. Johnson, Auburn, \$2.00.

For best specimen canned peaches : Mrs. D. H. Colby, \$1.00 ; Mrs. Benson Grant, 50c.

Canned strawberries : A. B. Chipman & Son, \$1.00 ; Mrs. D. H. Colby, 50c.

Canned raspberries : Mrs. Frances Hoyt, \$1.00 ; A. B. Chipman & Son, 50c.

Canned cherries : Mrs. E. F. Purington, \$1.00 ; Mrs. Frances Hoyt, 50c.

Canned quinces : Mrs. D. H. Colby, \$1.00.

Canned tomatoes : Mrs. D. H. Colby, \$1.00.

Preserved quinces : Mrs. D. H. Colby, \$1.00 ; Mrs. Frances Hoyt, 50c.

Preserved apples : Mrs. M. L. Robbins, \$1.00 ; Mrs. D. H. Colby, 50c.

Preserved plums : Mrs. Frances Hoyt, \$1.00.

Preserved pears : Mrs. Frances Hoyt, \$1.00 ; Mrs. D. H. Colby, 50c.

Preserved strawberries : Mrs. Benson Grant, \$1.00 ; Mrs. E. F. Purington, 50c.

Preserved raspberries: Mrs. Benson Grant, \$1.00.

Preserved currants: Mrs. D. H. Colby, \$1.00; Mrs. Frances Hoyt, 50c.

Preserved cherries: Mrs. E. F. Purington, \$1.00; A. B. Chipman & Son, 50c.

Best jar assorted pickles: Mrs. D. H. Colby, \$1.00; Mrs. Frances Hoyt, 50c.

Best bottle tomato catsup, Mrs. A. W. Penley, \$1.00; Mrs. D. H. Colby, 50c.

Best jar quince jelly: Mrs. Frances Hoyt, \$1.00.

Apple jelly: A. B. Chipman & Son, \$1.00; Mrs. M. L. Robins, 50c.

Grape jelly: Mrs. Benson Grant, \$1.00; Mrs. D. H. Colby, 50c.

Currant jelly: Mrs. D. H. Colby, \$1.00; Mrs. Benson Grant, 50c.

Strawberry jelly: Mrs. Frances Hoyt, \$1.00; Mrs. Benson Grant, 50c.

For best ten pounds evaporated apples, W. H. Keith, \$3.00.

Class VI.—FLOWERS.

FIRST DIVISION.

RULES. In this class no article can be entered for more than one premium. All plants and flowers entered for premium must positively be in their places at the exhibition room on the second day of the Fair at 10 o'clock A. M.

AWARDS. Best display of cut flowers filling not less than one hundred phials: Mrs. Charles Stanley, Winthrop, \$10.00; Miss Cora E. Ring, Richmond, \$8.00; Miss Abbie E. Ring, Richmond, \$5.00

For best exhibition roses: G. M. Roak, \$5.00; John Burr, \$3.00.

Dahlia: Mrs. Charles Stanley, \$2.00.

Chinese pinks: Mrs. W. S. Haskell, \$1.00; Mrs. Charles Stanley, 50c.

Asters: Mrs. Charles Stanley, \$1.00

Pansies: Mrs. W. S. Haskell, \$1.00; Mrs. Charles Stanley, 50c.

Zinnias: Miss Cora E. King, \$1.00; Mrs. Charles Stanley, 50c.

Phlox Drummondii: Mrs. Charles Stanley, \$1.00; Miss Cora E. Ring, 50c.

Stocks: Mrs. Charles Stanley, \$1.00.

Balsams: Miss Cora E. Ring, \$1.00; Mrs. Charles Stanley, 50c.

Petunias: Mrs. Charles Stanley, \$1.00.

Gladiolus: Mrs. Charles Stanley, \$2.00.

Verbenas: Miss Cora E. Ring, \$2.00; Mrs. Frances Hoyt, \$1.00.

SECOND DIVISION.

For best pair parlor bouquets: John Burr, \$1.00; Mrs. Chas. Stanley, 50c; Julia E. Briggs, 25c.

For best pair wall bouquets: Mrs. Frances Hoyt, \$1.00; Miss Cora H. Stanley, 50c.

For best pair hand bouquets: John Burr, \$1.00; Miss Cora H. Stanley, 50c; Mrs. Frances Hoyt, 25c.

Floral pillow: G. M. Roak, \$5.00; John Burr, \$3.00; Mrs. Chas. Stanley, \$2.00.

Floral design (professional): John Burr, \$8.00; G. M. Roak, \$5.00.

Floral design (amateur): Mrs. Chas. Stanley, \$5.00.

Floral wreath: Mrs. Frances Hoyt, \$2.00; Mrs. Chas. Stanley, \$1.00.

Best dish of cut flowers: Mrs. Frances Hoyt, \$2.00.

Fancy basket: Mrs. Cora H. Stanley, \$2.00; Mrs. Frances Hoyt, \$1.00.

Dried grasses: Mrs. Frances Hoyt, \$2.00; Mrs. Chas. Stanley, \$1 00.

Everlasting flowers: Mrs. Frances Hoyt, \$1.00; Mrs. Chas. Stanley, 50c.

THIRD DIVISION.

For best exhibition of greenhouse plants: John Burr, Freeport, \$15.00; G. M. Roak, Auburn, \$10.00.

Ferns: John Burr, \$3.00; G. M. Roak, \$2.00.

Geraniums: John Burr, \$2.00; G. M. Roak, \$1.00.

Begonias: John Burr, \$2.00; G. M. Roak, \$1.00.

Coleus: John Burr, \$2.00; G. M. Roak, \$1.00.

Specimen plant of Dracæna, John Burr, 50c.; double geranium, G. M. Roak, 50c.; double geranium, John Burr, 25c.

Specimen plant of single geranium, John Burr, 50c.; G. M. Roak, 25c.

- Salvia splendens, G. M. Roak, 50c. ; John Burr, 25c.
Foliage begonia : John Burr, 50c. : G. M. Roak, 25c.
Flowering begonia : John Burr, 50c. ; G. M. Roak, 25c.
Coleus : G. M. Roak, 50. ; John Burr, 25c.
Fuchsia : G. M. Roak, 50c. ; John Burr, 25c.
Carnation : John Burr, 50c. ; G. M. Roak, 25c.
Single pot plant : G. M. Roak, \$1.00 ; John Burr, 50c.
Special floral design : Lucy B. Burr, \$3.00 ; Geo. M. Chase,
\$2.00.

PROCEEDINGS OF THE JOINT MEETING
OF THE
MAINE STATE POMOLOGICAL SOCIETY
AND THE
MAINE BOARD OF AGRICULTURE,
HELD IN

Town Hall, New Gloucester, February 22, 23 and 24, 1888.

Proceedings of the Joint Winter Meeting.

By special arrangement with the Secretary of the Maine Board of Agriculture, the Executive Committee of the Maine State Pomological Society perfected a programme for a joint winter meeting representing both organizations. At first there were some doubts as to the desirability of the union, but the grand success achieved by the meeting, fully justified the wisdom of the Executive Committee in uniting with the Secretary of the Board of Agriculture in arranging for the meeting. Our Society represents one of the most important agricultural industries in the State, and it is a matter of special congratulation that we may call the Board of Agriculture to our aid.

A cordial invitation was extended to the Society by the citizens of New Gloucester to hold the winter meeting in their beautiful Town hall. In accordance with the invitation, the joint winter meeting was held in New Gloucester, February 22, 23 and 24, 1888.

Mr. J. W. True of New Gloucester, was chairman of the local committee of arrangements, and under his direction the details were carefully provided for. The citizens were generous and hospitable to their numerous visitors, and were throughout enthusiastic attendants upon the meetings. The public meetings were largely attended, and the proceedings were more generally reported in the papers of the State than any of our former meetings. It is well to note here that this is a strong indication of the increased interest in fruit and horticultural affairs in our State.

FIRST DAY—FORENOON.

The opening exercises were informal, the time being devoted to arranging of the fruit tables, and other details connected with the meetings.

AFTERNOON.

The Society met at 2 o'clock, and was called to order by the President, Mr. Chas. S. Pope of Manchester. The Secretary, Mr. Samuel L. Boardman of Augusta, made an informal report of the Society's transactions during the past year. The Treasurer, Mr. D. H. Knowlton of Farmington, presented his annual report and it was accepted. The Society then proceeded to the election of officers for the current year. The Treasurer's report and the names of the officers elected may be found in previous pages of the transactions.

EVENING SESSION.

The meeting was called to order by the President, at 7 o'clock, who introduced Charles P. Haskell, Esq., of New Gloucester, who delivered the address of welcome.

ADDRESS OF WELCOME.

By CHARLES P. HASKELL.

Mr. President: You are doubtless aware that you have assembled for your winter meeting in the oldest county in the State, save one, a county in which agriculture has always been one of the leading industries.

At first it may have been in a measure unscientific, and of a kind common to primitive New England, yet ever sustained and carried on by a people who recognized the great fact that everywhere improved methods of agriculture kept even pace with increasing intelligence and civilization.

In the improvement which has been made in farm stock, from the old fashioned scrub that stood bristling and shivering in the cold, to the sleek thoroughbred that now stands contentedly ruminating in his bedded stall; in laying aside the rude implements of husbandry of former days, to give place to the well nigh perfected ones of the present; in all the progress that agriculture has made in New England; in every department that tended to lessen human labor and at the same time make it more remunerative; in all the mighty march of progress which the century has shown, not only in agriculture, but in everything that contributes to the sum of human welfare, in-

deed in thought itself, the people of Cumberland county have ever striven to keep well abreast the spirit of the times. Her agriculture has always been diversified in its nature, and among these diversities the orchard was early cultivated; if not for its market fruit, perhaps for the good cheer that was sure to flow from the cider mug which by the blazing fire, graced many a chimney corner in the jolly old days of yore.

Now that steam has annihilated distance so that the ocean itself forms no barrier in seeking a market, the growing of fruit in many localities has come well to the front as one of the leading agricultural industries.

The pioneers of this town were not all of that class of whom it has been written,

“The average farmer we have oft’ been told
Was not a fruit grower in the days of old,
And if by chance a fruit should be found
So venturesome to occupy his ground,
’Twas there by accident not by design
And yielded fruit fit only for the swine.”

Instead, early in the development of our farming industry an orchard, though of natural fruit, was considered a necessary adjunct to nearly every farm.

While in summer some of our hills and plains are covered with the beautiful green of the forest, well nigh primeval, to be changed in time to the glories of autumnal tints, and our valleys are cheered with waving fields of grass and grain, waiting for the coming of the even clipping scythe; yet many a hillside is covered with blooming orchards, a good earnest of a rich autumnal fruitage, not of the kinds familiar to the fathers in the days of their youth, but of varieties the most approved; an indication of some of the progress which fruit culture has made. In this community, in any community where the fruit of the orchard has become a source of material profit, the planting and growing of trees to a healthy maturity, the warding off of insects ever increasing in numbers and kinds, the harvesting, storing, packing and marketing of fruit, climatic conditions, adaptability of soils to different varieties, cannot fail to be subjects of deep and abiding interest; for a thorough understanding of the underlying principles applicable to fruit growing is essential to the highest success.

Though the apple holds so prominent a place in our consideration, we would not ignore the necessity of more light in regard to the

cultivation of the small fruits, now that the cultivated fruit of the garden, instead of the wild product of the fields and the pastures is relied upon as the main source of supply.

Neither would we forget the necessity of more encouragement in regard to the planting of shade and ornamental trees in which there is so much utility and beauty combined; their protecting arms affording shelter alike from the cold of winter and the heat of summer, adding attractiveness to the home, to places of public resort and beautifying the public ways.

Any action which will direct public attention more fully to the planting of shade and ornamental trees we would hail with delight, as a step worthy the last half of the nineteenth century, a step forward on the true line of progress.

Mr. President: We cannot pass unnoticed that other department which it is the pleasure of your society to encourage, the cultivation of flowers.

We are told that Solomon in all his glory was not arrayed like the plain lily of the field.

The fullness of the beauty, the power for good there is in flowers no tongue as yet has been able to fully tell. Their presence adds pleasure in the house of feasting, and softens sorrow in the house of mourning; we see them in the church to draw the thoughts of the worshippers nearer to the Great Giver of all good, their presence in and around the school-room has turned the stubborn youth from ways of rudeness and idleness to the paths of obedience and study; when seen in or about the home, be it in the sunshine of summer or through the blasts of winter, they tell of purity of thought, nobleness of spirit and culture there.

Flowers soften the hard spots, smooth the rough edges of human nature and lift humanity to a higher and nobler life.

With Longfellow can we say,

“In all places, then, and in all seasons,
Flowers expand their bright and soul-like wings,
Teaching us by most persuasive reasons,
How akin they are to human things.”

Realizing the extended influence which this Society exerts upon every question that engages its attention, and anticipating much that will result in great good from the light thrown upon the subjects considered at these meetings, it is a pleasant duty for me, in behalf of the farmers and people of New Gloucester to extend to you, Mr. Presi-

dent, and to the members of the Society over whose deliberations you preside, and to all, who by their voice or presence contribute to the success of these meetings, a most cordial welcome.

Feeling doubly assured that the good results sure to flow from this joint winter session, will be not only local, but as far reaching as the confines of our noble State, I say to you again, Mr. President, in behalf of my fellow citizens, Welcome, thrice Welcome to our town.

In behalf of the society D. H. Knowlton, Secretary, responded to the address of welcome. Vice President O. C. Nelson assumed the chair and introduced Mr. Charles S. Pope, who proceeded to deliver his annual address.

ANNUAL ADDRESS.

By CHARLES S. POPE, President.

Ladies and Gentlemen: Members of the State Pomological Society, I do not propose to weary you at this time with a tedious dissertation but simply review a little our work for the past year and make a few suggestions, and then give the time to essays and discussions that will prove more interesting.

Our annual exhibition in September in connection with the State Agricultural Society, we think, gave good satisfaction to all concerned. The display was much better, in some respects than we anticipated at so early a date. Fruits of all kinds were unusually forward. Our late winter apples were of fair size and quite well colored and even. Some varieties of out-door grapes were on exhibition which appeared to be fully ripe. Perhaps the detriment to the fruit department arising from the early date was fully compensated by an unusually good display of flowers.

At our earnest solicitation Mr. Geo. M. Roak of Auburn and Mr. John Burr of Freeport kindly consented to send in fine collections of greenhouse plants, which added very much to the attractiveness of the hall. At a meeting of the trustees of the State Agricultural Society in January, they made us a liberal offer to again join our exhibition with theirs; it remains for you to decide whether it is for the interest of the society to accept their terms. Should you decide to do so, we think it necessary to make a change in our by-laws. It is impossible in our connection with the agricultural society to give our annual members the privileges at our exhibition which our by-laws, as they now stand, specify.

We learn that the officers of the Agricultural Society have set apart a room to be used during the next Fair for evening meetings, and that they invite the Pomological Society to occupy one evening. Should you decide to hold an exhibition in connection with them, we think the executive committee should not fail to accept the invitation and make early arrangement for an attractive programme. The policy of holding our annual exhibition in the same location for a long term of years, demands our consideration. From a pecuniary point of view the present arrangement may seem best for the Society, but as we aim to benefit the whole State, would it not be decidedly better to visit some of the more remote parts occasionally? Could we not afford to make some sacrifice to meet with those who share to a greater or less degree our interest in these matters, but cannot arrange to meet us here?

We think our premium list needs some revision but would not recommend any radical changes. We would suggest as an advantage, the offering of a liberal premium for the best essay on some horticultural topic, to be read at our winter meeting.

We would call attention especially to the necessity of revising the Society's catalogue of fruits. In our opinion, many of the new varieties with which our State is being flooded, should have a place in the list, so that our people may know what to discard as well as what to plant; and when any variety of fruit is condemned, the reason for the same should be given. There are so few of our prominent fruit-growers in attendance at this meeting that it would be impossible to do the work thoroughly now, had we the time to do so. To make a reliable list we should have the opinion of hundreds of our best fruit-growers in all parts of the State, and this can be accomplished only by correspondence; therefore, it seems to us highly important that a committee be appointed whose duty it shall be to perfect some system and make up a catalogue which shall be forwarded to the Secretary in season to be printed in our next report.

An effort has been made for several years to secure a reduction of postage on seeds, bulbs and plants by mail. Unquestionably the present rate is excessive as compared with that of other countries; we pay just four times as much postage on this class of mail matter as do our Canadian neighbors, while in England a package of eleven pounds requires a little more than half the postage we pay on a four pound package. As we are all directly interested in this matter, I suggest that we take such action as shall throw the weight of our influence to favor the passage of the bill now pending in Congress.

In reply to my recent request to contribute a paper for this meeting, one of our fruit-growers answered, that he had nothing new to offer, that it would be simply a repetition of what had already been said. In our opinion new phases of the problem arise year by year. A few years ago our answer to the question, where shall I plant an orchard? would have been, on some high hill. As to variety? The Baldwin every time for profit. We should now answer, on moist soil—well underdrained if necessary—and we should hesitate before recommending the Baldwin in many localities, on account of its liability to attack by “apple scab.” The Ben Davis apple that a few years ago was condemned by our own Society, is now thought by many of our prominent orchardists to be the coming apple for shipment.

Within a few years, it has been pretty thoroughly demonstrated that the greater part of damage from codling moth can be prevented by the use of arsenical poisons, and we have good reason to hope scientific research will soon discover some methods of defending our orchards from the destructive apple maggot and “apple scab.” With reliable remedies for these three enemies of the fruit grower, orcharding would receive a fresh impulse, and we hope it will shortly be our privilege as a society to aid in disseminating among our people such methods.

The address of President Pope was referred to a special committee consisting of D. H. Knowlton, S. L. Boardman, and L. H. Blossom.

Mr. W. P. Atherton of Hallowell, then read the following paper :

UTILITY vs. SENTIMENT.

By W. P. ATHERTON.

Ladies and Gentlemen: I have selected this topic for a short paper not because I feel competent to deal with it, but because it appears to me to be one that needs some attention. It is not a question with me whether it ought to be introduced on this occasion, or whether it ought to be discussed or not just now; as to that it matters not, but it does matter in the education of the race whether the mind be guided rightly or wrongly. It does matter in the education of our sons and daughters whether their minds be bent wholly in the direction of the one or the other, or, neither warped by sentiment nor degraded by utility they shall receive enough of good from both to make a perfect harmony.

My subject, then, should be utility and sentiment for, like theory and practice they should go hand in hand. If bread and butter be uppermost or the acquisition of wealth alone is to be considered why then sentiment may take a back seat, if it may not withdraw from the contest altogether, and let utility hold supreme sway over the mind as it certainly will when the tendency is wholly in that direction. Frugality, economy and the acquisition of wealth are all good things in their way but carried to that extreme whereby the mind becomes so poisoned as to be devoid of all sentiment, so that the planting of a shade tree by the roadside, a fruit tree in the garden, a vine by the door are not to be considered for a moment or, if considered, only as time worse than wasted, then I say that a mind of a Schiller or a Goethe wholly engrossed in song, poetry and sentiment were far better.

The French as a people are noted for their economy, but to such a degree has a certain class among them carried their economical habits, that they can talk of nothing else but how to save here and how to scrimp there till the caller is utterly disgusted. It may be better to pay one's debts rather than to increase them, and extravagance in any people is not to be commended, but that spirit of improvement which is born of sentiment, nourished and sustained by sentiment is to be commended where it leads one to a higher plane of thought and action.

Looking at the question then solely from the point of sentiment without entertaining here all that is meant by æsthetics or æsthetic culture, it would seem that farm-life demanded something more than the holding of the plow, the swing of the scythe, or the crack of the whip. These and other acquisitions have their place; they are the necessary and useful accompaniments to a life on the farm, and the more skilled one becomes in their use, the better; still, something more is required, something that will make that life more attractive, more highly appreciated, nay, I might say, more endurable. For to many is it not true that farm life is simply endured? It is not loved or appreciated as it ought or might be were farmers properly educated. We cannot have in the country the tense thought, the stirring activities, the mighty pulse-beats and heart-throbs of the great cities, nor do we need them, but we can emulate and follow the growing sentiment of our rural cities and villages, a sentiment which annihilates the old dogmas of seclusion, high board fences and multifarious shrubbery and substitutes therefor the neatly

trimmed lawn, and with vine and plant and flower so arranged as to give a fine setting, like a picture both beautiful and restful. The time was when the lilac, the cinnamon rose and the Boston pink played a prominent part in the adornment of country homes, but that day has long since passed and it is only because these things were perennial, hardy, deep rooted and strong rooted, like the ideas that once prevailed, that we have any evidence that a house once stood on the forsaken and otherwise barren spot we gaze upon. How many such spots there are and what sad thoughts arise as we view these tender reminders of the old homesteads, now deserted or utterly gone to ruin.

I remember of climbing a few years ago one of those immense foothills to old Abram in company with a friend, and how upon our descent my companion pointed out to me such a spot and said "here stood a house once and here was born and reared a lad who is now one of the most noted preachers in the land. You would scarcely think," said he, "that such a man could spring from such a place." "No, I should not," I answered. The land was rough, stony and rugged, and yet we know that often it is from just such rugged surroundings that some of our most prominent and useful men have had their birth and earliest education. What part in the wide range of sentiment the lilac, the cinnamon rose or the Boston pink could have played in the lives of some of our greatest preachers, poets and authors we cannot tell; we know only that they did act a part and for the influence they did have let us ever hold them in sweet remembrance.

We do not care to perpetuate a dead past. Times have changed. The sentiment of the age is progressive. The spirit of improvement which animates the mind of the village or city resident and prompts him to remove old fences and everything that is offensive or unsightly; to grade his grounds evenly; to lay them out artistically and adorn them with a few choice plants and flowers, is manifestly on the increase and is certainly to be commended by every lover of the beautiful.

That there is a growing sentiment in the rural districts of removing altogether road-side fences and clearing the lands adjacent to the highways of all unsightly bushes, stones, weeds and rubbish, and cultivating the same in connection with previously enclosed lands is very evident. I say growing, for such is the fact. In some towns

this sentiment has made but little if any lodgment, in some it is growing very slowly while in others it has made marked progress. Among the latter class may be mentioned the town of Sidney, which, if not the banner town in this respect, is at least a strong leader. In this town, both on the river and middle roads, great progress has been made and scores of farmers have removed their road-side fences and cultivated the land close to the highway. The initial steps, steps absolutely necessary though hard to be taken, in the march of improvement, of removing the fences and subduing the land have here been taken, but, alas! must I say, it, too many never get beyond the *utility* idea. I can almost see some old farmers now (I could if it was July) jumping up and down, clapping their hands and chuckling inwardly and saying to themselves, "Why! why didn't we think of this thing before; here is a lot of land that in the past has absolutely run to waste or fed my neighbors' cattle and we have lost hundreds of dollars in hay, grain and potatoes; but we are not going to lose any more; this land is rich from the washings of the highway, or from decayed rubbish or from long enforced idleness; moreover, in the future it will not cost us much to keep up its fertility for in most cases it is gratuitously and permanently enriched and now we are going to make the most of the privilege." So they have reasoned, and thus it is with a few rare exceptions that the grand opportunity has been seized upon and utilized. They have raised hay, grain and potatoes and instead of shade or ornamental they have set out apple trees.

In one sense the proprietors of these lands have a perfect right to do as they please with them, and in another sense they have no right to ignore or trample upon the rights of the public; one of those rights, of course, is the "right of eminent domain" in which not sentiment but utility plays a leading part; another of those rights is the sense of what is proper which includes poetry, sentiment and art. Now there may be both sentiment and poetry in tasseled corn, in waving grain and in blossoming rows of potatoes, but I prefer to read poetry of that kind a little farther off when riding in the country, and if it was put to a vote whether the lands not actually needed to keep in repair the highways should be wholly utilized in the growing of crops or, in part, devoted to sentiment by planting of ornamental trees, I think that nine-tenths of the public would agree with me that the latter course was the one to be pursued.

A great deal more might be said upon this subject but time and space forbid. It will only be necessary to add that while the farmer cannot be and is not expected to be a landscape gardener, he may yet do much to make his home much more than what it now too frequently is, simply an abode to eat, sleep and die in, and having in fact none of those essentials most desirable in a true home. It is the little things of life too often overlooked, such as the planting of a shade tree, the planting of a plum, a pear or a cherry tree, a small space devoted to small fruits or the cultivation of a few choice flowers, which play an important part in the moulding of character and add a grace and charm that nothing else can give.

This paper is written not alone for the farmer but for all the village residents who have the means and taste to improve their homes and more particularly their immediate surroundings. In all such improvements such as the removal of old fences and the grading and adornment of the grounds, sentiment should not hold supreme sway but be so subordinated to the utility idea that a sufficient space of ground be reserved, where possible, to the planting of fruit trees and to the cultivation of a few plants of the most desirable of the small fruits.

DISCUSSION.

SEC. GILBERT. There is nothing that gives pleasanter thoughts of the industry and good taste of a community than road-sides well cleared up and door-yards well kept and ornamented by thrifty people. The contrast is very marked when reaching another district, where with difficulty one finds his way through the highway. Utility and beauty may be combined by planting fruit trees about the home and along the highway. Nothing is more beautiful than a well formed fruit tree growing in a well-kept lawn, or along the highway. Give us men of utility combined with beauty.

MR. ATHERTON. It was the custom in my boyhood to clear the land of stones and dump them with other rubbish into the highway. In later years I have done what I could to clear away the same stones from the highway, and now the land where the stones were is productive, and cheering to my view. The street commissioner came up my way and dug the stones out of the highway and threw them along the roadside. The highway officials are guilty of defacing a good many road-sides in this way. I had to scold them a good deal before they would quit this kind of work.

Mr. PARKER HOLT, New Gloucester. I like the idea of planting apple trees along the highways, but it is our duty to teach the farmers to prune up their apple trees. Cut the limbs twice a year with a fine-tooth saw about six inches from the trunk ; then after the limb is off cut again close and carefully to the tree trunk. The wound will heal quickly and the trees will bear large and beautiful fruit.

Mr. J. W. TRUE, New Gloucester. I do not favor the planting of fruit trees along the highways. They branch out low down, and I very much prefer the planting of shade trees. If the valuable trees now growing along the highways could be marked in some way so the surveyors and road commissioners would not cut them down indiscriminately, it would be a great advantage.

Mr. ATHERTON. I believe more attention should be given to the cultivation of flowers among the farmers. They should be growing about every country home.

Mr. CHARLES P. HASKELL. I am interested in planting trees along the highways. The apple tree is beautiful in its place ; the shade tree is beautiful in its place ; where is the place of each ? The broad branches of the elm extend wide over the lawn, and it is longer lived than the apple tree. I have cleared away the rubbish thrown upon the road-side by the road commissioners, but I think the owners of land should act together in this matter. It would be an excellent idea if towns were required to line the highways with shade trees. The only way to keep rubbish out of the highways is to educate the people up to the beautifying of the highways.

Mr. LEWIS F. STARRETT, Rockland. I am in favor of setting trees along the highways. I think there should be a variety of the trees growing in our forests. There is no necessity of planting trees in lines. The grower may shape a tree much as he may choose by judicious pruning and training.

Hon. P. M. AUGUR, Connecticut. I am in full sympathy with the ideas advanced upon utility and sentiment. The boys and girls should be taught to love their own homes the best of any place, and the adorning of homes by shade trees has very much to do with the development of that love. A few years since I removed several rods of fence along the street, and it became town talk. At first the stock troubled us a little and we were obliged to yard the cattle once or twice, but now the grass grows beautifully along the road-side and our mowing machine is run up to the road without difficulty.

The President appointed D. J. Briggs, Turner, T. M. Merrill, New Gloucester, and A. E. Andrews, Gardiner, a committee on fruit exhibit.

THURSDAY FORENOON.

The meeting was called to order by President Pope at 9.30 o'clock.

Mr. Dunbar not being present, a paper prepared by him on "Plums and Their Culture," was read by Mr. M. C. Hobbs of West Farmington.

PLUMS AND THEIR CULTURE.

By E. W. DUNBAR.

In writing upon the cultivation of any crop, I feel somewhat diffident, from the fact that there are so very many different things to be considered. When I find a certain variety of fruit growing successfully in one locality, and within a few miles from it the same variety, under similar cultivation, almost a failure, I feel cautious about recommending any particular varieties or special modes of cultivation. In this paper I think it best to confine myself, principally, to my own experience, the varieties grown, soil, dressings and some observations in connection with the subject, rather than to advance theories.

I have cultivated plums more or less for thirty years. My first effort was upon a farm in the town of Nobleboro', some six miles north of this place. I had but few trees. I had excellent success with the Imperial Gage grafted upon the old Damson stock dressed wholly with stable manure. I disposed of this farm and moved to the village of Damariscotta, and in 1872 purchased a residence together with quite a lot of land. Upon examining the soil, I found it similar to that upon which my plums were raised on the farm, and so decided to set a few trees to see what they would do in my new location. My success with the Imperial Gage induced me to select some of the same variety. I set this and the Lombard. They grew well and commenced to fruit in three years. In 1879 they bore the best crop which was very abundant. Upon one limb, not over three-fourths of an inch in diameter, on a space of one foot, I counted fifty-six well grown plums.

In 1875, I set some McLaughlin and Bradshaw, and have continued setting a few trees nearly every year since. To this time, I have lost but two trees, one, a McLaughlin, died of a bark disease; the other, a Washington, died, I think, by too much pruning. The latter has not been a success with me.

VARIETIES NOW IN CULTIVATION.

Imperial Gage, Lombard, Bradshaw, McLaughlin, Green Gage, Purple Gage, Niagara, Wheat (on pomegranate stock), Smith's Orleans, Moore's Arctic, River's Blue Prolific, Reine Claude, Shropshire Damson, Yellow Egg, Victoria and Magnum Bonum, Saunders, and Shippers' Pride ordered to set the coming spring. From this list the following have done the best with me: Imperial Gage, Lombard, Bradshaw, Niagara and Wheat. A few have not been set long enough to fruit, therefore I cannot state what they will do. I have a very favorable opinion of the Niagara. It seems hardy, fruit large and abundant, and one tree which has been set seven years has entirely escaped the black knot. Moore's Arctic is doing well in this county. I have two trees. They were set three years ago. They fruited the second year and show some good qualities, being hardy, fair growers, and have fruited two years in succession. Why this variety was dropped by this society from its list of specials, I never knew; but probably by the suggestion of some who had more experience in its cultivation than myself.

THE BLACK KNOT.

This I find the most difficult to control of any thing in cultivating this crop. I do not know how to prevent it. All I do for it is to cut off the knots as soon after they appear as possible, and dress the trees heavily, thus giving them a thrifty growth. Of all the varieties I have grown, the Niagara is the only one that has entirely escaped this disease, and I find this variety affected in a garden not over thirty rods from mine. I have cut off the limbs of some that were very largely covered with the knots and they are sending out new branches; whether they will ever recover and become worth cultivating remains to be seen. During fourteen years I have not lost a tree by this disease. Much has been written upon this disease, many remedies prescribed; but I believe it is now generally admitted by cultivators that no remedy has ever been discovered.

If we knew the cause it might lead to a remedy. Years ago, when the soil was new, this disease was unknown. May it not be that some element that the soil then contained has become exhausted, and if we could learn what it was, by supplying it, might we not prevent the disease? Perhaps this may be worth looking into by some who have the means and time to experiment in this direction.

CURCULIO.

This is an insect about five-sixteenths of an inch long, of a brown color with spots of white, yellow and black. They appear as soon as the fruit forms, and continue until about the middle of August. It is supposed to fly from the ground. They puncture the plum and lay an egg in the wound. The gum oozes out, the egg hatches, the worm eats into the fruit which falls from the tree, usually before it is half grown. Some cultivators recommend jarring the tree suddenly in the morning and evening, when they will fall and can be caught on a cloth and destroyed. I have been troubled but little with this pest. I keep hens in the orchard, and no grass or weeds grow around my trees. I think the hens and clean cultivation will prevent nearly all trouble from this insect.

SOIL.

I have grown all of my plums upon a clay-loam, well drained naturally, and quite moist. I do not wish to be understood that plums cannot successfully grow upon other kinds of soil, nor that my manner of cultivation is the best. It is simply my experience, and my success has been very satisfactory.

DRESSING.

The principal dressing used has been stable manure and sea-weed applied liberally in autumn, wood ashes and salt in the spring. I am satisfied that fruit growers, generally, do not use dressing with the liberality they should. In the spring, as soon as the ground becomes in condition to work, I fork around my trees, being careful not to interfere with the roots, mixing the dressing that was placed around them in the previous autumn with the soil, and at the same time apply wood ashes and salt. Droppings from the hen-house and pig-pen will not injure them.

PRUNING.

When I set the trees, I cut out all superfluous branches, and cut back all limbs to form a well proportioned head. For the first three or four years I cut back about one-fourth to one-half of the previous year's growth, always in the spring before the trees start to grow. They should not be pruned at the trunk, but at the end of the branches. No *stone* fruit will bear pruning as we prune the apple and pear.

The plum in this part of the State is the most profitable fruit grown. There is always a demand, at a good price, while apples and pears are a drug in our markets about every other year.

Mr. D. P. True of Leeds Centre read the following paper :

NOTES ON PLUM CULTURE.

By D. P. TRUE.

The cultivation of this fruit has been attracting more attention among fruit-growers of late ; and its great productiveness and early bearing added to its ready sale in our local markets go a long way towards making it a very popular fruit. Having given the plum considerable attention for the past fifteen years I will give a brief statement of facts and theories. My first experience was with an old Damson tree that had struggled on for years, a disgrace to the premises. I began to try all the remedies that I could hear of with very poor success until I commenced to cut off the black knot, and the tree was so badly diseased that it was finally cut down ; but it sent up vigorous shoots that have borne many bushels of plums ; but the best was that it learned me this lesson, that by care and constant cutting I could *control* the black knot. Black knot in those days was thought to have been caused by an insect, but late years our scientists have established the fact beyond a doubt that the cause is of a fungoid nature, and the disease is spread from tree to tree by spores that float in the air, and that being the case, it would seem that to burn the black knot is as important as to cut it off, as it is claimed that it will send off its spores just as readily after being cut as before.

In plum-growing a proper location is of greater consequence than in most other fruits for the following reasons : In the first place

the plum is quite tender and ought to have a good elevation so that our hard winters will not affect too seriously; next choose a heavy compact soil, as a loose sandy one is the favorite home of the curculio. but with the hard compact soil, he cannot burrow easily. Do not locate your plum orchard too near other lands that you do not control, as plum or cherry trees that are covered with black knot will surely work the ruin of your own.

The curculio has not seemed to do so much damage in Maine as in other states; and it does not seem to trouble large orchards so badly as it does isolated trees; but I think most highly of a hard stony soil as a protection from this troublesome pest. Some advise grafting the plum on the Canada stock, but the trouble is that the scion will outgrow the stock and the first full crop of plums are more than likely to prove its last; the union is so poor that it will fail to bear its burden and it will split down. First class trees on plum roots will give the best satisfaction in the long run. The plum tree will not require much pruning, although it will stand a large amount of cutting well. Give good cultivation and the plum will make a very rapid growth. Salt is a very good fertilizer for the plum tree and a liberal use of wood ashes on all our old worn out soils are a necessity. It would be well to shorten in the more vigorous shoots early in the autumn, as this will cause the tender wood to harden and prevent winter killing. Trees that bear too heavily should be thinned as they are very liable to break down with their burden of fruit. The plum unlike the pear, to be the most delicious should be ripened on the tree; but in order to stand transportation well, will have to be picked before they are fully ripe. Our local markets require all the plums that we have been able to raise, and no doubt they will for some time to come.

In making selection of choice varieties, we have quite a list to select from. As for my own experience, I would place McLaughlin first for quality and size; it is quite hardy and has proved a good bearer with me; but it has this disadvantage, it will not bear transportation well like the Lombard. Smith's Orleans is a plum of good size and quality, productive, and very hardy. The Shropshire Damson is a plum of good quality and very productive, a very popular market variety; it has sold for better prices with me than any other variety. The Yellow Gage is a fine eating variety but has the bad habit of rotting on the tree; some years it has proved an entire failure from this cause. The Lombard is very productive but lacks

the fine quality of the best varieties; it will bear transportation better than any other, making it a very valuable market variety.

DISCUSSION.

Mr. L. F. STARRETT. We have a remedy for the curculio, which my mother has tried for two or three years, and in which she has great faith, and I think it is well worth a trial by any who are troubled with this insect. It is to take good dry corn cobs, soak them in well sweetened water and hang them on the trees. The theory is that the curculio is attracted by the sweetness and lays her eggs in the cob instead of in the plum. The cobs can then be destroyed and with them the young insects. My mother saw this method advocated in a newspaper and tried it and it has worked well. She had not had much success with her plums, but this plan has worked so well that she has continued to use it every year.

Mr. NELSON. I would like to ask Mr. True what amount of salt it will do to put around a plum tree.

Mr. TRUE. I do not pretend to be an expert and I should not dare to fix the amount. I think it would be very dangerous to put much salt very near the trunk of a tree. I should use a small amount, comparatively speaking. We all know that too much salt is death to vegetation. But I have been in the habit of using it and have taken it for granted that it was good for my trees.

Mr. NELSON. Why I asked that question was that in 1858, I had twelve nice plum trees that were bearing first rate. I read in some agricultural paper that salt was just the thing to put around them. In clearing out some pork barrels I had about a bushel of salt, and I spread that around these twelve trees, and they never leaved out afterwards.

Mr. MERRILL. Mr. Nelson's experience does not seem to be in harmony with the advice and practice of the great plum-growers of the West, who recommend salt as being very beneficial. In Mr. Nelson's case it seems to have been fatal. I would like to inquire what time of year he applied his salt and how he applied it; whether it was distributed equally over the whole orchard or applied directly about each tree?

Mr. NELSON. I will say that I put this around as I poured it out of the pork barrel, brine and salt. Of course it was quite an

amount. I don't know that I was very careful to spread it all over the ground, as I supposed by what I read, that I certainly should have a nice crop of plums the next year. I think it was in November that I put it on. The trees never leaved out after that; it seemed to kill them at once.

D. P. TRUE. I have always been careful not to allow salt to touch the trunk of the tree. I apply brine and salt in about the same amount, in proportion to the number of trees, that Mr. Nelson speaks of, but I take the precaution to dig a small hole and cover the salt afterwards. I am satisfied that too much salt, or a very little salt put directly around the trunk of a tree will be fatal.

MR. AUGUR. We have applied salt to plum trees. How much did you apply to a tree? A bushel to twelve trees would be less than three quarts to a tree. I should have no very great fear to apply that amount of salt to plum trees, if it was thrown quite evenly over the whole ground and without any brine. Brine, a saturated solution of salt, is very strong and if that came in contact with the roots it would be pretty apt to work mischief. I think salt is of such a nature that it should always be used with extreme caution, particularly when it comes in close proximity to the roots. Prof. Johnson, of our State, says there is no plant that needs salt, that it is not a fertilizer; and the question is, what benefit then is salt? There has been an idea, and I entertained it at one time, that salt was valuable as a remedy for the curculio; but I am satisfied that there isn't any ground for that. The amount of salt that it will be safe to use would not be sufficient to destroy the larvæ of the curculio. If it was used in sufficient strength to destroy them, it would be a damage to the tree. But there is this beneficial action to salt, I think: its action as a re-agent in the soil, in its chemical action, and possibly in releasing potash and making it available for the benefit of the plum. A certain amount applied to the soil will increase the crop of beets, onions or potatoes, and I have an idea that it works in the same way with plums; not because the salt is a plant food, but because it brings the other elements of the soil into condition to be available. In a state of solution, as a brine, I should most positively object to using it in any quantity, because it so soon comes in contact with the tissue of the plant, whatever it may be.

There are two or three points in connection with this matter that I will just allude to. Several have spoken of the advisability of

enclosing plum trees in a hen yard. I believe in that most fully. We have an orchard of about an eighth of an acre which we have treated in that way successfully. And so far as the curculio is concerned it has been a perfect success. The only trouble has been over-productiveness; our trees have borne too much.

Now, while you may be able to provide for the most of your trees in that way, you may have a choice tree away by itself that you cannot conveniently enclose in that way, and you may ask if there is any other way to combat successfully with the curculio. Well, the old way of jarring the tree and catching and killing the insects of course is effectual if it is followed thoroughly through the curculio season. But when they have 40 or 50 acres of plums as they do at Seneca Lake and some other points, the aggregate of the expense is large although when you reckon the cost for a single tree it is but little. And there will be certain days when it will be omitted, and the curculio do their work very rapidly when they commence.

There is another remedy which I have a good deal of confidence in and have tried somewhat, and I think, successfully, and that is, at the season when we expect the curculio, to apply some very offensive wash, drenching every tree. For instance, dissolve a pail or two pails of coal tar in forty gallons of water and let it stand a few days. Of course the liquid will be offensive; and the curculio, although he is a hateful fellow, is a little fastidious, and a very offensive smell like that of coal tar, is regarded by many as a very sure preventive. I have considerable faith in it. I would not want to absolutely warrant it, at the same time I have confidence in it. We have used other offensive mixtures, like whale-oil soap, that we have thought efficacious. At all events we have had full crops after doing so.

But there is a more difficult matter that we have to contend with. I was at a meeting of the Massachusetts Board of Agriculture, where Prof. Maynard of Amherst gave a lecture, and I put this question to him, hoping that we should get a satisfactory answer. The question was: "Have you found any absolute prevention or cure for the black knot?" And he said very emphatically, "No." Well, that is a question I would be willing to travel to Chicago and back again to find a satisfactory solution of, an absolute cure or preventive of black knot, of easy application. If there is any such I have not read of it. Cutting off has been recommended. I believe in that. Our Secretary, Mr. Gold, is a deacon of the Congregationalist Church and a strict observer of the Sabbath, but I once heard

him say that if he was standing under a plum tree and saw a black knot coming, even if it was on the Sabbath, he should cut it off and put it in the fire. I think that at sight, where we can, we should cut off the black knot and at once destroy it. That has been my rule and my practice; but, in spite of all, I have to acknowledge that they will beat me, badly beat me; and, to-day, the great dread that I have and the thing that stands in the way of our success in the raising of plums, is the black knot. I almost despair of any absolute remedy; and the question with me now is, what varieties of plums are least subject to it. I was very glad to hear, in regard to the Niagara plum, that it is one. I presume that is correct. The German Prune is another. Though not absolutely free from black knot it is comparatively so. The Imperial Gage is another and Pond's Seedling another. We are very favorably inclined towards Pond's Seedling as a large, beautiful, attractive plum. The McLaughlin has been spoken of and I concur in the estimate of that as being one of the best plums in quality. It is fine.

With regard to the black knot here is another point, and I am looking that way with considerable interest; the Chickasaw varieties, embracing the well-known plums, the Wild Goose, the DeSoto, the Marian and some of those new varieties so far, with me, have shown no disposition to take the black knot. And I think, again, that these varieties of the Chickasaw plum which sometimes fail to bear alone, do much better when planted in proximity to some of the European varieties such as the German Prune, Pond's Seedling. The Wild Goose plum has been regarded as a humbug, and I regarded it so for quite a while. I have a Wild Goose plum now that stands in close proximity between two of the European varieties, and it has borne very satisfactorily. Now, if we can get a cross, a hybrid, which will combine the resisting power to the black knot with some of the excellencies of the European varieties like the McLaughlin, we shall have something valuable. The black knot in our vicinity has been almost universal and it has been very discouraging in spite of our best efforts to keep it back.

Mr. POPE. Have you had any experience with Moore's Arctic?

Mr. AUGUR. No, sir. I have seen it but haven't it on my land.

Mr. POPE. That is claimed to be exempt from the black knot particularly. I had trees sent from the Woodstock nurseries, and before I had had them two years the two main branches for about

six inches came out with black knot and I have not succeeded in keeping it back.

Mr. AUGUR. I presume many of you know the Hon. J. F. C. Hyde, the agricultural editor of the Congregationalist of Boston. This last summer I was on his land where he has a plum orchard. He has recommended cutting off as the great specific for keeping clear of black knot. When I was on his grounds the black knot was coming out all over his trees, and he said to me, "I give it up, I don't know where to cut unless I cut to the ground." And we have almost had that same experience ourselves. For years and years we said "you can kill it by cutting off at sight," but it has broken out all over and we have been completely set back in all our ideas as to stopping it, and we have cut down a good many trees.

Mr. NELSON. I am very glad to hear Mr. Augur speak of the Wild Goose plum. I have a tree that I have had some twelve years which never has borne a black knot or a plum. I want to ask him what kind of a plum I shall place beside it, or whether I shall put it between two, that I may fertilize it so as to raise some plums from that tree.

Mr. AUGUR. I would like to say to Mr. Nelson that it is barely possible that he may have been served on his Wild Goose as I was. The plum trees that I had for Wild Goose at first were no more like the Wild Goose than a chicken would be like a goose. They were entirely untrue to the name. But we now have the genuine Wild Goose plum. I have regarded the Wild Goose as being an impracticable thing, but I am more and more getting to think that as it grows in proximity with other varieties it may be the means of obviating that difficulty. I do not think they bear as young as other varieties. The Lombard plum you could not keep from bearing if you wanted to. But that is not exactly the case with the Wild Goose. If I were to suggest a mate to plant near the Wild Goose, on the spur of the moment, I would say plant the Lombard near it. It has very abundant pollen, very perfect flowers, and not only that but it is loaded with plums, and if the branches are so that they can interlace I think probably, if Mr. Nelson has a genuine Wild Goose plum tree, he would be very likely to get fruit from it.

Question. What varieties are subject to rot?

Mr. AUGUR. We are troubled considerably in that way. The Lombard is particularly liable to rot. You will often find clusters of plums a foot or fifteen inches long where they touch each other all

through, and in a wet season they will rot. Another point; it is often the case that plums that are punctured by the curculio will hang on and grow almost up to ripening and those will rot. If the plum is punctured so late that the larva of the curculio fails to eat through the stone and the pith, it will hang. And aside from that if the season is hot and wet I think the Lombard plums are apt to rot. The best thing I know is to go over the trees occasionally and pick off all the decaying plums, for where one commences to rot it will cause others to rot.

Mr. D. P. TRUE. I would like to inquire of Mr. Augur if his trees that trouble him with the black knot were near other trees that had been somewhat neglected and suffering badly before you discovered it. I was away from home one summer and the black knot made its appearance slightly and when I got home I discovered a windrow, as you might say, right through my plum orchard where it had seemed to be blown by the wind, and I went right at my trees; some of them I cut severely; the original tree I had to cut down and burn; the others were not so bad. I thought it passed in the air.

Mr. AUGUR. I think it does. It has been correctly stated here that this disease is of a fungoid character and it is carried by spores, and carried considerable distances. We have about an eighth of an acre enclosed with a high fence and we have about twenty different varieties in that orchard; but we had no older trees in the orchard that were affected. I think the two varieties that we have suffered the most from have been the Lombard and the Shropshire Damson. When the excrescence first starts it looks like a fresh growth and it comes out all over the trees almost simultaneously. I found that among the Hudson river plum trees it had been an epidemic and had damaged them to the amount of tens of thousands of dollars. I think it is bad policy to allow old affected trees to stand where you are setting out young trees. Sometimes this pest will come like the scarlet fever or the measles and you hardly know where to trace its beginning.

Mr. NELSON. A gentleman wishes me to inquire, in view of the trouble from curculios and the black knot, what four or five varieties you would recommend as likely to be most successful.

Mr. AUGUR. Among the European varieties I think my impressions agree very nearly with those of Mr. Dunbar. The Niagara is highly esteemed in western New York and I should mark that as one. The German Prune is another which our people esteem very highly.

It has one special merit. Now, the Lombard and a good many other plums when cooked, even with a pound of sugar to a pound of plums, will still be sour. The German Prune is different in that respect; it cooks a good deal sweeter. I would not want to warrant any of these trees to be entirely exempt from the black knot. The Pond's Seedling has succeeded very well in many neighborhoods. It is a large, beautiful plum. It is not exempt from the black knot. The Reine Claude de Bavay is very highly esteemed. It has a most exquisite flavor. The Quackenboss is thought very highly of. It is rather a coarse plum but sweet and very good. It is productive and grows to a good size and looks well. It is grown quite largely up the Hudson and is rather a popular plum.

MR. KNOWLTON. Are these varieties all hardy as far as you know?

MR. AUGUR. In our latitude we have not suffered at all from winter killing. I do not know how it would be here.

MR. MERRILL. I would like to inquire what distance apart Mr. Augur would plant plum trees?

MR. AUGUR. In the large plum orchards near Geneva, I think they are planted twenty or twenty-five feet apart, but in our little enclosure we put them a good deal closer than that. We did it merely because we wanted to occupy that hen yard to its fullest capacity. When it has borne a full crop it has been a wonderful sight to see the trees universally loaded with fruit.

MR. POPE. I would like to inquire of Mr. Augur if he has had any experience in shaving off the black knot and applying anything instead of cutting the limb off.

MR. AUGUR. Yes. If I saw two or three black knots coming out very near the stem of a tree where it would mutilate the tree badly to cut the limbs off I would shave off the knots and then take a woolen rag or something of the kind and rub the shaved surfaces with spirits of turpentine to destroy any roots of the fungus that might remain. But the trouble with me has been somewhat as in attempting to stop a flock of sheep going over a wall. After two or three get over it isn't much use to try to stop them. We have proved that when a tree has become affected with black knot it is liable to go in spite of us.

MR. POPE. That has been the practice with some of our fruit growers, to shave quite deeply and apply spirits of turpentine.

J. W. TRUE. I should like to know whether the plums recommended would work well in Maine with our length of season.

Mr. AUGUR. Our experience in Connecticut might not apply well here. Your own growers would be a good deal safer advisers than I. And in regard to the Niagara I will say that I only speak of that from reputation, and not from my own experience. The other varieties we have grown. But I hear from various quarters excellent reports of the Niagara plum and have seen trees that impressed me very favorably with the beautiful fruit they bore.

Mr. BLOSSOM. I have been very much interested in the discussion, and I will say to the citizens of New Gloucester that you have had the pleasure of listening to a valuable discussion on this most excellent fruit, which has been brought out since I have been connected with the society.

Mr. Nelson, in his wild goose chase after wild goose plums wants to get the tree to bear. He has been recommended to put some kind of a bearing tree beside it. I should say top graft that tree to some good variety and then he will get some plums out of it.

According to this discussion the best way of escaping the curculio is to enclose the trees in a hen yard, and that not only keeps off the curculio but it keeps the ground enriched. All the fault that system has is that it results in over production. I think we can put up with that if we can only get good plums.

In regard to black knot, some twelve years ago I started a dozen cherry trees and about the same number of plums. The cherry trees I started from three or four old trees all eaten up with black knot. I took the sprouts and set them out and cut the old trees down and burned them up. I don't think last year I found two limbs on my twelve cherry trees that had black knots on them. It was this old fashioned red cherry. I haven't bought any fancy varieties. I like those old fashioned ones. The plum trees, with one exception, the Washington, have also escaped the black knot. On the Lombard, the Imperial Gage, the Pond's Seedling, I never have found a limb of black knot. I set my trees eighteen feet apart. If I was going to set another plum orchard and put a fence around it to keep hens in I don't think I should plant them over twelve feet apart. When they get to interfering with each other I would thin them out.

Mr. AUGUR. I would like to emphasize that point. I think it is an excellent one and I fully concur. He might graft alternate branches with some other variety and in that way get a good inter-

lacing of limbs. I know no shorter way. Then if you fail to get Wild Goose plums you can graft the rest of the top.

Mr. MERRILL. Since plum culture is becoming such an industry in the State I think the question of variety is one of importance. We have settled within a few years that we need Baldwins for apple trees. Now what do we need for plum trees? If we are going to set plum trees for our own family use perhaps a variety of half a dozen would be recommended. But for business we want to know what is the best variety. It has cost us a good deal to find out which was the best variety of apples for us to raise. If we can avoid that expense on the plums it will be a great benefit to those who are interested in this business.

Mr. BLOSSOM. In our markets in Lewiston and Auburn the favorite variety is the Lombard. I don't know as that is the best plum, but so far as my experience goes, it is the easiest plum to raise and it is the best selling plum. If it is the best selling plum and the easiest to raise it is the plum for us to produce mostly. If I were to set out fifty plum trees next spring I should set twenty-five Lombards.

Mr. MERRILL. I think Mr. Blossom later on after a few years of experience will wish that he had planted forty-nine Lombards and one of some other kind, and later on he will say he should have planted fifty Lombards.

AFTERNOON.

The meeting was called to order at 1 30 o'clock, President Pope in the chair.

Hon. Samuel L. Boardman, of Augusta, read the following paper :

TREES AND THEIR USES IN RURAL EMBELLISHMENT.

By SAMUEL L. BOARDMAN.

Men and trees have always been inseparable companions. In the beginning God planted a garden over to the eastward in Eden, where, it may be supposed, it was so planned to command the first rays of the rising sun, and out of the ground of that garden He made to grow every tree that was pleasant to the sight and good for food. It would be foolish and presumptuous to say that man could not exist without trees, because were there no such objects in existence the Infinite Benevolence would supply his wants through some other medium. But constituted as man is, and established as trees and their functions and properties are, it is plain that the present exquisite order and harmony of things in regard to man's welfare, are most intimately and inseparably identified with trees. Thus when we would consider man and his privileges, the amenities and enjoyments that encircle life, the comforts and ornaments of his home, we cannot possibly do so, if we would give all things their fair place, without keeping trees also constantly in mind; and hence from the time when those trees pleasant to the sight were set in the ground over to the eastward in that first garden, down to the newest country home with its finely painted clapboards and row of street maples planted but yesterday, have trees given picturesqueness to the landscape, surrounded man's home with beauty, and been to him everywhere objects of attention, companionship and love. In the landscape trees are indispensable to that high and fine quality of enjoyment which we term picturesqueness. We may look out upon a rocky mountain and pronounce it grand and sublime, but we have little sympathy with its somewhat forbidding grandeur. Infinite reaches of rolling prairie, the soil fertile and covered for miles and miles with rich fields of corn, may give one an idea of agricultural wealth—but in the absence of trees neither view could be called beautiful or picturesque. Trees clothe the mountain-side with loveliness, they break up the outlines of view, and give variety of colors, movement and shadows; they touch the imagination with an agreeable sense of fruitfulness, or, if they be timber or forest trees, with the idea of nobility and wealth. Indeed trees are to the landscape what living and moving people are to the town, or to the interior of a massive church or cathedral—an element that *may be* dispensed

with, it is true, but if so, it must be done at the expense of the finest and most impressive influences. "The truth is," says Hamerton, "that a solitude is not so solitary if there is a tree it, and if there is a group of trees we feel it to be almost peopled." Indeed I think it will be found true in the experiences of most of us, that those scenes which come home most warmly to our sympathies, and that seem to have a perennial hold upon our hearts, are those that are enriched by the abundance of their trees, shrubs and flowers.

For generations we have been a people of tree destroyers. Our forefathers in clearing their openings wanted not a tree to be left standing about cabin or hovel—there were trees enough everywhere, and of what good were they except for fuel and saw logs? Then down came the trees, log piles were made and burned, and the early settlers seemed in a hurry to rid the ground of every vestige of Nature's most beautiful creation. But we are glad to have lived to a day when a higher and more rational public sentiment pervades our people; when trees are regarded as objects of beauty, deserving our affection and care; when to cut down a beautiful tree is felt to be a kind of slaughter, and to protect them is the sign of a tender and merciful disposition.

In a country of so varied natural beauty as that favored portion of New England in which our homes have been cast—with its diversified landscape, picturesque views of lake and river, hill and valley, with its healthful climate and exceedingly varied and interesting indigenous flora, it should be regarded as a matter of neglect, almost of reproach, if any one buying, building or creating a home for himself and family, should fail to embellish it with some portion of that infinite wealth of beauty and charm connected with the trees and shrubs which may be had almost for the taking and planting. It should be a duty with all citizens in town or country having a small village flat or possessed of broad acres, to adorn them with those objects of perpetual beauty and service which do not decay as do the cottages and halls which they build, but are a constant source of admiration and delight as the years go on; for trees, unlike houses and churches, temples and towers, do not begin to decay so soon as planted, as these other things do so soon as builded, but they grow and flourish throughout the centuries; they give joy and confer happiness upon children's children, they may live to bestow blessings upon strangers, even, and long years afterwards furnish the material

which may shelter other generations in homes built upon the lumber of trees which man, ages past, had planted.

In choosing a site or location for a home, first of all attention should be given to the matter of sanitary surroundings. A healthful situation should be selected. This must afford good drainage, an elevated location, one commanding the sunlight in its fullest scope, and in a position to secure pure air. Next the home grounds should be easy of access, not selected close upon the street, nor yet too far from a good public road, but the buildings should occupy the happy medium. After this comes into the plan a beautiful outlook from window or lawn, commanding fine views of scenery, pleasing vistas through trees, and grounds made beautiful by the abundant planting of tree, shrub and vine. While we in Maine do not possess that extended range of tree growth and beauty which more favored climatic sections of our country can boast, we yet have a long list from which to select; and out of the great variety of trees indigenous to our soil there is comparatively little difficulty in finding beautiful kinds adapted to almost any situation. We have in this State four species of maple, three of ash, four of birch, two of cherry, two of elm, four of poplar, six of oak, and then we have the beech, butternut, linden, hornbeam, mountain ash, and chestnut, besides two pines, two spruces, two balsams, with the hemlock, juniper and larch. To be more particular as to number, I believe our native flora comprises thirty-eight species of deciduous trees, and eight of the coniferous or evergreens—a list from which trees of almost every form, size and color of foliage—whether in June, September or January, may be selected. Indeed, I think too many of us are ignorant of our tree-wealth, and our nurserymen have often sent abroad for trees when we have had much better ones at home. Mr. Eggleston, one of the forestry commissioners of the Department of Agriculture says there are not more than fifty species of forest trees in all Europe worth cultivating, while in our own country we have eight hundred species, 250 of which grow to the height of thirty feet, fifty to the height of 100 feet, and of the entire number, fifty are of the coniferous class. A comparison of our own native flora with that of the most favored portion of the old world, the British Isles, would appear greatly to our advantage, if we would take the opinion of a Scotch gardener, who visited this country some three years ago, and who said, writing home to an agricultural journal: “I am amazed at the indifference of the Americans to the

variety and wonderful beauty of their native trees and shrubs. Their nurserymen and landscape gardeners are trying to grow trees of foreign nativity just for the name of it, at a cost of many failures and disappointments when they have better kinds all about them at home." So high a recommendation of our tree beauty, from such a source is surely worth heeding.

The scope of this paper forbids any reference to details of planting, so far as mere labor is concerned. I will only say that out of the above list are to be obtained trees that will grow almost anywhere, if taken up at the proper time in spring or fall and removed from the forest to the home grounds with care, properly set, and after being set not neglected, until they are able to take care of themselves. So far as possible the same conditions should be obtained upon the home grounds, for a tree removed from the forest, as those to which it had been accustomed; and while it is not necessary to depend upon the foreign nursery for our ornamental any more than for our fruit trees, it is true that trees from a nursery, having been two or three times transplanted and having an abundance of fibrous roots, bear removal better than trees from the natural forest. But if selected from the forest care should be observed to take them from the edge of the wood, rather than in its depths. They are more symmetrical and bear transplanting better. Choose small trees—they are usually of more perfect shape and in removing them one is sure to take up a greater proportional share of roots than with trees which are larger.

Of its own species or variety a tree for ornament should be as near perfect as it is possible to find one in half a day's hunt about the woods and pastures, one embodying the decided characteristics of the species to which it belongs, straight of trunk, symmetrical in outline and beautiful from any point of view. A tree should never be planted for shade or ornament which we will ever become tired of looking at. It is true a crooked tree with dense foliage on one side, and open branches on another will serve the purpose of shade, but it will never serve that higher one of ornament. So long therefore as the same tree may combine both elements, that of humble service and of queenly beauty, be sure to select that which represents the two qualities.

In planting trees about home grounds of moderate extent it is generally the better rule to have each tree depend for its beauty or ornamental effect upon itself alone, rather than upon other trees.

Of course it is well understood that upon grounds of large extent, or for avenue and roadside planting, trees are often set in rows, groups or pairs. In such cases they depend upon each other to some extent for their best effect; and yet just here great disappointment may come in. It is almost impossible to make trees grow alike as time goes on, how carefully soever they may have been selected and planted. One grows more rapidly than another; one may meet with an accident which will disfigure it; another, perhaps out of an avenue upon the symmetry of which we have put great hopes, may die. In large grounds, in public parks, along the public highway, these disappointments and accidents may be remedied even if at considerable cost. Upon grounds of limited size it is far better to plant so that each tree will depend upon itself for the pleasing effect which it gives, standing in harmony or in contrast with its neighbor, without particular regard to their own size, habit or characteristics.

Grouping or massing trees upon the lawn or about the grounds should be carefully studied. Upon the north and northeast sides of the house, or situation of grounds, trees may be grouped for purposes of protection or shelter from severe winds; but at southeast and southwest there should in general be no massing. If thought best to employ it at these points, the grouping should never interrupt a fine view in the landscape, or be placed near the dwelling. There is no hygienic agency equal to that of the sun—the true source of life. Without it, plants, and animals alike, have but a sickly life or a slow death. No trees, therefore, or anything else, ought to be allowed to keep its healthful beams from striking upon our houses, and coming for a while at least, each day, into all our rooms. Blinds, curtains, draperies, carpets ought to make way for the sun and give it heartiest welcome. Health leaves the house when the sunshine is kept out of it. If one wants the *shade* of trees, let it be sought at some little distance from the dwelling.

Over-planting is liable to be a very general fault with those who set trees about the small home grounds. He who is making a new place, especially, is anxious for rapid size and immediate effect, and it is not infrequently the case that from four to ten times as many trees are planted as the grounds can possibly give space to, and thus beautiful effect and healthfulness of trees are sacrificed. The pretty little maple which you may carry easily in your hand, the slim elm from the corner of the pasture woods, or the small evergreen, may

look lonesome if given all the tree room when planted which they will require after ten or a dozen years of healthy growth. Thus in a little time they become crowded and then not only is their charm and beauty as trees lost, but the highest beauty of the lawn is lost also; for nothing will make amends for the want of some space of clear, unobstructed, beautiful turf, on which the sun may throw its light, and across which may play the shadows of the clouds. The only remedy for thick planting is the axe. But how we dislike to cut them down. They have cost us labor and care and love. We planted some of them, it may chance, for a dear boy or girl, and we have loved them for their sakes. If cut out they mar the beauty of the grounds, if left they become eye-sores. It takes much faith to realize that a little maple will some day require four or five square rods of ground for its own use, or that a fir will not look becoming unless its lower branches have a space of ground thirty feet square on which to spread themselves—but some such faith as this must be exercised whenever one plants trees for the embellishment of his grounds.

Fruit trees are as much out of place on a lawn, or in purely ornamental grounds, as a handful of chips would be thrown upon a pansy bed. The apple tree in the full wealth of its rich fruitage is a beautiful object but its beauty belongs to the orchard not to the lawn. If an exception is to be made in favor of grounds of small extent, let the apple tree be set where it can be picked only. The dropping fruit is not a lawn ornament, its branches are only beautiful when covered with bloom, and then only for a few days. It should never be planted as an ornamental tree.

Again, harmony of form and color in trees, with their artificial surroundings should be regarded. Tall, slender trees will not look well beside a low building with a flat roof, nor will broad, round-topped trees beside a tall building with a sharp roof. It is the rule of personal vesture applied to the forms of arboreal beauty. Tall and short men should dress differently. The hat that would set becomingly upon the one, would look unbecoming upon the other. Color should be studied—not only the spring and summer tints of virgin and mature leaf, but the ripened and brilliant hues of autumn. Crimson and green foliage may go well together with the walls of a white house; while bronze and yellow would have a discordant effect. The effect of color in tree foliage at different seasons, in connection

with its surroundings is a magnificent, broad study, full of inspiration and satisfaction.

In the whole range of literature pertaining to this subject to which I have had access, I have not found a better or more complete code of laws for the proper disposition of trees and shrubs upon the lawn and about the dwelling, than is contained in Mr. Frank Scott's noble work on "The Art of Beautifying Suburban Home Grounds." They are brief, but embrace a whole treatise in themselves, and had I simply read them instead of this long essay, it would seemed to have been complete. They are:

"1. Preserve in one or more places—according to the size and form of the lot—the greatest length of unbroken lawn that the space will admit of.

2. Plant between radiating lines from the house to the outside of the lot, so as to leave open lines of view from the principal windows and entrance porches; also find when, without injuring the views to and from the house, the best vistas may be left from the street into the lot, and from one point to another across the grounds, or to points of interest beyond.

3. Plant the larger trees and shrubs farthest from the centre of the lawn, so that the smaller may be seen to advantage in front of them.

4. On small lots plant no trees which quickly attain great size, if it is intended to have a variety of shrubs and flowers.

5. In adding to belts or groups of trees or shrubs, plant near the saliant points, rather than in bays or openings.

6. Shrubs which rest upon the lawn should not be planted nearer than from six to ten feet from the front fence, except where intended to form a continuous screen or foliage."

The question has been often asked, as it has in reference to other similar subjects, does all this embellishment pay? Is there any money value to the ornamental? The best reply to this which I have at command is contained in a statement made by Mr. John H. Yeaton of Augusta, at a meeting of Kennebec Pomona Grange last fall, at which this matter was under discussion. He gave an account of a small place of six acres in extent located near Augusta which, not so very large a number of years ago, was sold for \$800. The purchaser began to fix up and embellish the grounds by planting shade trees, shrubbery, flowers and fruits, including some plums, pears and a few hardy grape vines. In a few years he had so beautified the

surroundings of that place that he sold it for \$3,000. It was a large profit to be sure, but the man had the money, his wife took a fancy to the shrubs, flowers and ivy-covered verandah and so he bought it. A few years later somebody else saw that beautiful little place and wanted it. There was no more than the original six acres of land, the buildings had not been enlarged, only kept in good repair, but how attractive the grounds were; what a wealth of beauty there was in trees and vines, flowers and fruit! No, he didn't care about selling, but he would. The other man and his wife also took another fancy to the beautiful surroundings; not to the farm for it was small; not to the house for it was ordinary; but the trees and shrubs and fruit! It would take years to have them in any new place, and there they were, beautiful and luscious, and growing more and more attractive every year. Four thousand dollars. High do you say? But they bought the place.

Ah, my friends, what inanimate object appeals more certainly to the universal heart of man, than a beautiful tree? Its very commonness may be a reason why very many, and especially those who have grown up in well-wooded districts, are not distinctly conscious of the pleasure which they find in trees. It is like their unconsciousness of the delight in the daily enjoyment of the atmosphere. But who, least emotional of mortals though he may be, has not, at some time, if indeed he has not often, felt a tree to be a precious thing. The tired wayfarer, reclining by the dusty roadside under its cool, refreshing shade. What more truly humane picture than that? A party of old and young of both sexes, picnicing on a summer's day, beneath the spreading boughs of some grand old oak! How could such a happy scene be complete without that tree? Yonder lofty and majestic elm, the growth of a century, standing by the side of some farm-house, which though ample in size, it dwarfs to a cottage as it rises above it with its dome of shade, and tosses its giant arms high over roof-tree and chimney top! What an object to fill one at the same time with wonder and admiration! How it starts deep and meditative thoughts even in the most careless beholder. The lordly pine or hemlock, refusing to be robbed of its beauty at any season of the year, but sighing like a hundred Æolian harps, with every breeze, and holding itself before us as an emblem of life and immortality, to cheer us when all around is wrapped in the chill white robe of winter—what object on earth, next after the immortal man himself, is more beautiful or more noble? Man can-

not replace in a lifetime what his axe may destroy in an hour. It has taken a lifetime and more of the past to build up that miracle of beauty, a tree—let us each and all strive to preserve and perpetuate for the admiration of future generations, more than one of these magnificent miracles of beauty.

Following Mr. Boardman's paper an essay was read by Mr. D. H. Knowlton, of Farmington.

ARBOR DAY AND ITS OBSERVANCE.

By D. H. KNOWLTON.

For many years there has been much said in this and foreign countries about the preservation of the forests. The cause for it is well known to all who have thought of the depletion of the forests by the woodman's axe and the devouring flames. Maine bears upon her beautiful seal a noble pine tree, and at home and abroad she has been honored as the "Pine Tree State." When it received this name its hills and valleys were covered with an unbroken forest, save where the settler's axe had cleared his pioneer home. Far and near towering majestically above other forest trees, the tops of the White Pine swayed gracefully in the passing breeze. Where are they now, we may well ask. The lumbermen have felled them, and either at home or abroad the Maine Pine has been worked into thousands of homes. It is a valuable lumber for it is clear, easy to work, and contains those qualities that will preserve it for years when exposed to the elements. To-day, Maine has to send to the South and West for pine, while its high price has necessitated the use of other woods.

I have little confidence in many of the statistics emanating from our various forestry authorities, for some of them are inaccurate and grossly misleading. A paper was recently read by an official of the Forestry Department, dealing with the acreage of forest lands, and the yearly consumption of forest products. Divide the acreage given by the yearly consumption and the result shows that in just nine years and eight months the entire forests of the United States would be consumed. But that portion of the statistics referring to the acreage I have no doubt is reasonably accurate, and from this we learn that of the entire area of the State only 37 3 per cent has been cleared of forests. This was done for the purpose of making

farms, and for one I would be willing to sacrifice as much more for the same purpose. We could afford to give up the forests for an object that would more than double our wealth and population. For agricultural purposes we need not fear the depletion of our forests.

The forests are composed of a great variety of trees, some of which possess little value save for fuel, while the arts and sciences are utilizing others for various commercial products. Fifty years ago our spruce was considered of little value, but while we are gathered here our forests are full of lumbermen, and when the icy bands of winter loosen their grasp upon the streams, there will be millions of spruce logs floating down to the mills, where they will be converted into lumber. In fact, spruce has become the most valuable lumber in the erection of modern buildings. Millions of feet are shipped every year over our railroads and by water to other States and countries. Nor, is this all, for at several points along our rivers are huge mills grinding our spruces and other woods into pulp, which other mills more or less remote are converting into paper. It may not be generally known to you that nearly every newspaper in the United States is printed on paper made entirely or largely from wood. You may think this applies only to the cheap qualities of paper used by our newspaper publishers; but this wood pulp under the skillful manipulation of the chemist enters very largely into the tissues of many other papers. The paper on which a very handsome pamphlet was recently printed in Maine, was made entirely of wood pulp, and its beauty of finish has been favorably noted by many who have examined it. The paper on which these notes of mine are written is called "chemical" paper, but aside from coloring matter it comes from the Maine forests. It is one of the easiest papers to write on I have ever used. It takes the ink well, does not catch the pen points and when written shows the ink clearly and yet it is nothing but wood.

"Take everything you come to, that is three inches through, ten feet from the ground," said a Bangor lumberman to his foreman. This direction seems to be followed by too many of the Maine lumbermen. If the log is too small to cut up it may be ground into pulp.

The Maine hard woods now have a value beyond the supply of fuel. Maple and yellow birch are in demand for floor boards and other purposes, and when finished for use sell in our cities from \$40.00 to \$60.00 per thousand feet. The shovel manufacturers pay

well for the white ash, which is also in demand for fork handles, rake handles and for other purposes. The oaks are converted into stairs, the beech makes good dowels and lasts, while the brown ash and elm are used in numerous ways.

The hemlock is and has been a very valuable forest tree. The lumber manufactured from it is not the best but it makes a good covering board and holds the nail well, while its bark has been a source of great wealth for the rich supplies of tannic acid it contains. The basswood, which thrives in some parts of the State, is one of the most valuable woods for finishing, but lately it has been converted into carriage panels, and last year the Dennisons bought all they could get in my part of the State to manufacture into jewelry boxes.

If ever a tract of land was looked upon with disdain, by a Maine man in years past, it was the white birch lot. It is not the best fuel though burning readily and making a good heat, but the farmers had the idea that the land in which it grew was worthless for tillage. A white-birch country that can be reached by the railroads is not in the market to-day in this State. An immense industry has been developed within a few years, using the wood of the white birch. Most of the establishments are called "Novelty Turning Works," or something of the kind, and if you could go through these works and see the spools, boxes, toy pails, handles, etc., being turned out you would appreciate the aptness of the name. White birch logs delivered at these mills are worth from \$3.50 to \$4.50 per cord. The industry gives employment to a large number of men and women.

Other woods still are in great demand, and growing out of their use important industries have been built up, but I have not space to mention them in the limits of this paper. To some extent the forests have an influence in tempering extremes of drouth and heat, though much has been said by men interested in forestry upon the subject is not sustained by facts. It is not my purpose, however, to discuss this but rather to impress upon you the importance of preserving our forests for the great industrial wealth they are contributing to our thrifty people.

THE PRESERVATION OF THE FORESTS.

We come now to the preservation of our forests. It is my object to point out only such means of preservation as are within the reach of those owning large or small tracts of woodland. It is so clearly

for the interests of those owning large timber areas to guard against fires and cutting down half-grown trees, that as a matter of dollars and cents we may reasonably expect them to protect their own interests.

Of the forest area in Maine it is estimated that 22.4 per cent is located upon and forms a part of the farms in the State, and it is to the owners of these farms that the following suggestions may apply.

CUTTING OUT THE OLD TREES.

There are many wood-lots containing an old growth, that has reached its maturity. The natural process of decay has begun; the trunks are hollow and the winds have gradually shattered their tops. To some extent the farmers have made it a rule to cut out the old trees first, but there are many who in a lazy, shiftless manner either cut when it is easiest for them or else do not cut half enough. Remove the old trees for fuel or lumber. In most parts of the State this will be worth more than enough to pay for the marketing, while their removal gives the younger trees a better chance. The sunshine comes in without obstruction, and the forests having yielded of their full grown trees a profitable crop of wood and timber, are now at work producing another crop for the benefit of their thrifty owners, and in a few years the same process may be repeated and the woodland will be all the more valuable for it.

CUTTING OUT AND PRUNING YOUNG TREES.

The young forests are not receiving the attention they are entitled to. It is so easy for us to let Nature have her way undisturbed, that when the returns are so remote as in forestry, we have not interfered with the natural course of events. When the old growth is cut away Nature quickly begins the restoration of her forests. Thousands of tender leaves shoot up from seeds mysteriously sown by the wild winds, and if protected from grazing animals, in a few years they become an impenetrable jungle. If the stock is allowed to feed here when the leaves are tender, our young forest is likely to be completely annihilated by them or so dwarfed as to be nearly worthless. Again, if the trees are allowed to grow without interference they become so dense, that aside from growing tall they grow very slowly. Go through them with a bush scythe, leaving alternate spaces covered with the young trees, and you will be surprised at the results. The sunshine comes in, warms up the soil, and a rapid

growth follows. A year or two later, if the inferior trees are cut out, it will greatly enhance the value of what remain.

If this cutting out of inferior trees could be practiced in all our woodlands the advantage gained would pay the cost and more to, in the increased value it would give the forests.

TREE PLANTING.

We have special reason for gratitude that there are no large treeless areas in our State, that make it necessary for us to plant trees for fuel, timber or protection. There are, however, thousands of acres of land scattered over our State from which the trees have been cleared, that are quite worthless for tillage or pasturage. The idea of planting these barren hillsides with trees has hardly seemed a practical thing in the past, for the profit is too far away to stimulate much labor in this direction. But let us see. A wise and prudent farmer neglects no part of his farm. His purpose all the while is to employ such a system of culture as will improve his lands and his buildings as well as his stock. Apply the same doctrine to the woodland, and the farmer will be careful to have each acre on his farm producing to its utmost. Now there are parcels of land upon which some of our forest trees will grow, that are not producing enough to pay the taxes on them. Why not sow these with tree seeds, protect from the stock for a year or two, and make them productive? An intelligent farmer tells the writer he knows from his own experience that white birch will be large enough to cut from in fifteen to twenty years. There is a hillside, which at one time was of no account for tillage or grass, and he allowed it to grow up to white birch, the seeds of which were wafted from the neighboring woods. The fifteenth year the trees were from six to eight inches in diameter. Three miles away the wood is worth three dollars and a half to four dollars and a half per cord in the log. This piece of land to-day is a valuable piece of property, because of the white birch growing upon it. The same is true of poplar which is in large demand along the line of our railroads. If anything the poplar will grow more rapidly than the white birch. Other forest trees might be planted in places more remote from the markets, and there can be no doubt that if the unprofitable land was covered with growing trees there would be a constant appreciation in value of the wooded portions of the farm. Look well after the woodlands, and instead of sending all your hard earned dollars to western investors, expend

some of it at least in the improvement of your woodlands. The investment will be safer than any Kansas farm mortgage, because it will continually enhance the value of your farms.

ARBOR DAY.

The ornamentation of private grounds, public parks, and highways is gaining favor in all parts of the country. There are many localities that to a large degree are enjoying from artificial planting all the benefits imparted by the forests. The extremes of heat and cold, moisture and dryness are all modified by the silent influence of the beautiful shade trees that adorn our homes and streets.

The idea of an Arbor Day in America had its origin in Nebraska. The intent was to plant not only shade trees but trees for forests as well. The Nebraska State Board of Agriculture realizing the need of persistent effort to develop in the State a forest area that would protect its population from all the calamities incident to large treeless areas, passed a resolution in January, 1874, that the second Wednesday of April of each year be dedicated to the work of planting trees. The report goes on to say that the resolution was well received by the population of the State, and during that year more than 12,000,000 trees were planted, and that there are now no less than 100,000 acres of planted forests in the State.

Other Western States followed the example of Nebraska, and later in the same year the State Horticultural Society of the State of Iowa adopted an Arbor Day. In 1876, the Governor of Michigan proclaimed an Arbor Day. In Minnesota the State Forestry Association proclaimed Arbor Day, and the same year it is said a million and a half trees were planted. The Legislature of Ohio established Arbor Day in 1882. The State of West Virginia under the lead of its efficient State Superintendent of Public Schools largely observed the day in 1883. In these States the legislatures approved the adoption of Arbor Day shortly after its first observance. New Jersey and other States through their respective legislatures adopted Arbor Day, and when not otherwise designated the Governor by proclamation fixed upon the day. Here in Maine our last legislature adopted Arbor Day. It was quietly observed by several schools, some other bodies and here and there by private individuals.

The scope of the day has recently been widened, and the interest in it very much increased by engaging the pupils of the public schools in its observance. The chief of the Forestry Division of the Agri-

cultural Department remarks very properly, "The way has thus been opened for getting the facts relating to tree growth and the practical uses of trees before the minds of old and young alike, and for creating and diffusing through the community a sentiment which promises much good to the cause of forestry. It is this educational aspect which makes Arbor Day a specially desirable means of forestry reform."

OUR RELATIONS TOWARD THE DAY.

Nothing is more appropriate than that the Maine State Pomological Society should be among the foremost advocates of tree planting, both for ornament and utility. Our name does not imply anything beyond the growing of fruits, but it has always been our custom to consider the culture of flowers, shrubs and trees as forming part of our legitimate field of work. Having this in view I have taken the liberty to address you upon this subject.

Having considered the objects of Arbor Day, I will now offer some suggestions as to its appropriate observance in the State.

THE BOARD OF AGRICULTURE SHOULD LEAD OFF.

You have already noted that it was a Board of Agriculture that first instituted a general observance of Arbor Day. This suggests that inasmuch as our Board of Agriculture is the organized representative of our agricultural industries, it should lead off in the appropriate observance of Arbor Day in the State. The various State institutions, so far as I have visited them are quite generally surrounded by thrifty shade trees, and many of the grounds are beautifully laid out. But there are other places that need decoration, and it would be a pleasure to have the Board unite with some local body of less importance each year and make Arbor Day a grand and important event for agriculture in that neighborhood. Of course in connection with the observance of Arbor Day tree planting, tree culture, and forestry should be made most prominent in the programme, but as supplementary to these, the presence of a large number may be taken advantage of, and some of the best institute work of the entire season might be sandwiched in with the other exercises. The day comes when the farmers are very busy, you say; so does the Fourth of July and circus, when even those who have compunctions about entering the canvas, harness up and come out to show the children the street parade. Timely topics could be

selected for discussions and papers, and in my opinion the Board could not find a better opportunity for useful work.

OUR AGRICULTURAL GROUNDS NEED DECORATING.

But we can hardly expect the Board of Agriculture to engage in this work unless the opportunity is offered them. There are a large number of fair grounds in Maine. Their high board fences mar the beauty of the landscape, and on exhibition days as one approaches the entrance, a policeman peeps up from the inside to see that no ragamuffin is preparing to scale the walls. They remind us very much of the unsightly walls by which *some* of our State institutions are surrounded. Is there any place where the observance of Arbor Day would accomplish more? Years ago in the earlier days of our agricultural societies it was the custom for the people to gather in some public place during the annual exhibition and listen to an oration and poem prepared for the occasion. But for some reason this custom has given place to the horse trot and other exercises within the fair grounds, and now the societies have no public exercises during the entire year, in which there is any effort to disseminate by addresses, papers and discussions a knowledge of the art of agriculture. No effort has been made so far as I know to ornament the grounds very much, while some of the buildings are just horrid to behold. The excellent president of the State Agricultural Society some years since loaded his hay-rack with trees and drove to the fair grounds in Lewiston. These he planted about the park, and they already add much to the attractions there. As the years roll by they will send their roots down deep into the soil, and their outspreading branches will offer grateful umbrage to man and beast long years after the revered planter shall have passed away. There is room for more, and it would be highly gratifying if our State Agricultural Society would lead the way in this as they are doing in many other matters of less importance.

Let our local societies observe Arbor Day by planting trees and ornamenting their parks. Don't plant all the trees this year, for there will be none to plant next, but let some one of good taste in such matters lay out and sketch an outline of the exhibition grounds and indicate where the trees may be set to the best advantage. If it may be determined what varieties to plant as well, it will serve for the guidance of the society. Plant a few in parts most needed and so on each year, and when the design shall be carried out in all its

details, the work will not all be done for there will then be many chances for improving the grounds.

Now, why not make a *day* of this tree planting? Arrange for a good time without a horse trot and its bad associations. Begin early to make up a programme, giving the forenoon to the exercises connected with tree planting, which may be interspersed with addresses and papers prepared for the occasion, music, etc. At noon throw open the exhibition halls, and have a grand basket picnic. In the afternoon, and evening too, if you wish, call to your aid the Board of Agriculture for some speaking, but by all means use all the local talent possible. As much more may be added as the means of the society will permit.

THE SCHOOLS AND ARBOR DAY.

It has long been said to our disgrace that our school houses are located in barren, unattractive places, and that we are doing little to improve them. In the West, the schools were among the first to observe the day. Everywhere outside of the State, Maine teachers are among the foremost in the land. I believe the teachers remaining in the State are among the best as well. What a grand opportunity there is to do lasting work for the improvement of our desolate school grounds. The beautiful campus of one of our Maine colleges is covered with trees planted by the successive classes who have graduated from the institution. Years after the classes have separated, there is no place which offers more cordial greeting than the wide spreading branches of these trees. Many a college man returning to his *alma mater* in after years first seeks the grateful umbrage of the tree his hands assisted in planting in the days of yore. Do you suppose children would have less enthusiasm for tree planting? Our experience tells us that they would clap their hands with joy if only the teacher and parents would assist them in the appropriate observance of Arbor Day. Of what, some teacher may ask, shall such observance consist? Well, in the first place select one or more places where you wish to set the trees. Then ask the boys to select the best trees they can find for the purpose. When Arbor Day comes the forenoon may be spent by the boys or the entire school in getting the trees dug up and ready to set out. While the boys are doing this the girls could gather vines for a beautiful wreath with which to adorn the tree. There will perhaps be time to gather round the tree during the forenoon, set it out, sing a song or

two and decorate it with such wreaths and flowers as may be had. Should there be nothing more than this the exercise would be a good one, but there may be added to it readings about trees and flowers, some of the older ones may write something about the care of trees or the teacher may tell the pupils many interesting facts about trees, or there may be some one whom the teacher may call in to assist in making the exercises more interesting. Let this kind of tree planting be done year after year by our schools and our boys and girls would learn to love the old school-houses and grounds, as you and I, Mr. President, never dreamed of in our boyhood. It would not be many years till these "waste places," as some one calls them, would be the most cheerful spots in all the land.

OTHER ORGANIZATIONS SHOULD OBSERVE THE DAY.

The State Grange was one of the first organizations to urge the adoption of Arbor Day by the Legislature. Many of the granges in the State own halls of their own, some of which the enterprising patrons have already surrounded by trees. We have no doubt of their interest in Arbor Day, and their readiness either to observe it themselves or unite with others in doing it.

The churches have grounds, many of which are treeless; the cemeteries also call for our fostering care, and in no way can more enduring tributes be paid to the memory of the dead than by adorning their resting places with trees.

Village improvement societies may find in Arbor Day an opportunity of doing much to perpetuate the memory of their good works for years to come. There may be still another organization of which we will not speak, feeling all the while that a general observance of Arbor Day in Maine would pay its people well for their time and labor.

INDIVIDUAL OBSERVANCE OF THE DAY.

But, before closing I should be guilty of omission if I failed to call your attention to the importance of appropriately observing the day as individuals. I have tried to make it appear the duty and privilege of numerous organizations to observe the day in a public manner, and I now respectfully urge that every man who owns a home should observe Arbor Day year by year, till our homes are surrounded by trees and shrubs for ornament, shade and profit. When our excellent chief magistrate appoints the day let us be ready

to observe it. "What shall we plant?" you ask. We would plant, as a rule, only the thrifty, hardy growing trees and shrubs that may be had in abundance on any of our farms. There are other varieties, perhaps, that would do well, but life is too short for us to experiment very much, when we are in haste to enjoy the luxury of pleasantly surrounded homes.

Permit me to say that to my eyes there is no tree upon the lawn or on the roadside possessed of more real beauty than the apple tree. For one it will give me pleasure to plant the apple tree, thinking, perchance, my little ones in after years will fondly thank me for its grateful shade, its sweet scented blossoms, and its delicious fruits. Then would I join with the venerable poet who sweetly sings of "The Planting of the Apple Tree."

What plant we in this apple tree?
Buds, which the breath of summer days
Shall lengthen into leafy sprays;
Boughs, where the thrush, with crimson breast,
Shall haunt and sing and hide her nest;
We plant, upon the sunny lea,
A shadow for the noontide hour,
A shelter from the summer shower,
When we plant the apple tree.

What plant we in this apple tree?
Sweets, for a hundred flowery springs
To load the May-winds restless wings,
When, from the orchard row, he pours
Its fragrance through our open doors;
A world of blossoms for the bee,
Flowers for the sick girl's silent room,
For the glad infant sprigs of bloom,
We plant with the apple tree.

What plant we in this apple tree?
Fruits, that shall swell in sunny June,
And redden in the August noon,
And drop, when gentle airs come by,
That fan the blue September sky;
While children come, with cries of glee,
And seek them where the fragrant grass
Betrays their bed to those who pass
At the foot of the apple tree.

And when, above this apple tree,
The winter stars are quivering bright,
And winds go howling through the night,
Girls, whose young eyes o'erflow with mirth,
Shall peel its fruit by cottage hearth,

And guests in prouder homes shall see,
Heaped with the grapes of Cintra's vine
And golden orange of the line,
The fruit of the apple tree.

The fruitage of this apple tree,
Winds, and our flag of stripe and star,
Shall bear to coasts that lie afar,
Where men shall wonder at the view
And ask in what fair groves they grew;
And sojourners beyond the sea
Shall think of childhood's careless day
And long, long hours of summer play,
In the shade of the apple tree.

DISCUSSION.

Secretary Gilbert of the Board of Agriculture assumed the chair, and the papers were discussed.

Sec. GILBERT. The excellent papers to which you have listened this afternoon have fairly well covered the ground in the subject under consideration; yet, there is always room to clinch a good argument, and I presume that individuals here present would like to discuss some of the suggestive points which have been presented by the speakers of the afternoon on either subject, as the two are so closely allied that they may be discussed in conjunction quite as well as distinctly. The matter of planting trees for ornament and shade is always a fruitful one. The subject of Arbor Day is new to us here in our State, comparatively. Any further remarks as to the ways and methods of observing it, of enforcing the idea of its observance on the minds of our people would be very acceptable at this time and we will wait for voluntary remarks from any one present.

Mr. ATHERTON. There are two points in this last paper that I do not like to have passed by unnoticed. The first is Arbor Day itself. In my judgment it is altogether too late. It was last year, I think, the 10th of May. There is a school-house near by my place, and the teacher wanted to interest the scholars in Arbor Day and wanted them to set out some trees around the school-house, and the teacher

wanted me to assist the scholars in getting some trees and in setting them out. I told her it was a very busy season for me, right in planting time. I presume the writer of this paper is not a farmer and of course he cannot appreciate as farmers would, how exceedingly difficult it is for farmers to leave in the midst of planting to observe Arbor Day, although he may appreciate it to some extent. But I told the teacher I would do what I could, that I would spend half a day at least. When we arrived at the forest I was surprised to find that the trees had commenced budding. "Now," said I, "children, we are here, and I wish you to observe that these trees are too forward to be successfully taken up and transplanted; the buds are so far forward I am afraid they will not live, but we are here and we will do the best we can." The boys helped me all they could and we took up four maples and carried them to the school-yard; I cut them back severely and they were set out, principally by the children themselves; I helped them what I could. Two of the trees lived and two died. I said to the children, "Now if they die we will make an attempt another year and perhaps we will dig the trees up earlier, before Arbor Day, and I will hul them in somewhere, and then we will plant them on Arbor Day, and we will be sure they will live and so we will make the day more successful."

With regard to forestry, I do wish the Legislature of this State would see fit to grant some encouragement. I wish the Governor might recommend, in his message to the Legislature, for them to grant some encouragement to the farmer. I am a farmer, but I do say that the farmers as a rule, are the most careless of people in regard to what is for their own interest. When they cut off the wood they do not take pains to enclose the land, they let the cattle run over it and browse the young plants that spring up and thus destroy what would eventually make a fine growth of trees. On my home farm there was a heavy growth of some fifty cords to the acre, and when we cut it off we left ten acres to see what it would grow up to. There began to spring up a growth of hard wood, some poplars, white birches, and among them some black spruce; and we would turn our cattle out on each side of the wood-lot in the fall, and they would run through the forest, and I found afterwards that nothing was coming up there of any value, and as I didn't care to fence in that forest I concluded I would let the whole go and cut the whole off and make a pasture of the whole, as I had another wood-lot only about a mile from my place, in the town of Man-

chester. Now, on this Manchester lot of twenty-five acres the growth was all cut off some forty-five years ago, and now I am cutting on that same land wood which averages thirty to thirty-five cords to the acre, of maple, beech, poplar; and there are a number of trees of hemlocks of considerable value ranging from a foot to a foot and a half and some two feet in diameter. The poplars are from six inches to fifteen in diameter. I am selling wood every year now from that lot, the best of hard wood bringing me six dollars a cord dry and five green. For the poplar I get four dollars a cord. So I may safely say that that wood brings me in an average of five dollars a cord. At thirty cords per acre that would be one hundred and fifty dollars per acre from that growth of forty years. Now isn't that land worth preserving? And wouldn't many of our farmers be better off if they had taken the pains to enclose the land where they cut off their forest? I know right in the city of Augusta there are forests, on the Bond brook road and on Mt. Vernon Avenue there are forests of fine growth where only forty or fifty years ago the land was stripped, because cattle have not occupied it; and close to Hallowell there is a valuable growth of wood on a piece that in my boyhood days was entirely stripped. The wood lot is now very valuable and is owned by the Winthrop heirs of Boston.

Sec. GILBERT. The matter of the proper time for Arbor Day is one of some importance and I fully appreciate the remarks of the gentleman last up in regard to the situation last year. While we know that the matter of the appointment of that day is in the hands of the Governor, yet I presume he would be glad of suggestions on our part, or from a meeting of this kind, representing a wide area of the State, in regard to what date would be suitable to set apart for that purpose. And I think it would be a very good thing indeed to suggest a day or a week here at this time and communicate the same to the Governor.

Mr. BRIGGS. There was one point advanced, in regard to cutting wood for timber, that I should not entirely agree with the speaker about. I have been in the wood and lumbering business twenty-five or thirty years until some five or six years ago. Formerly, I had my choppers take out the old growth. I soon found out that that was not the best way to protect our wood lots. Latterly, I have cut everything clean when cutting for timber. If you wish it to grow up to any other growth or to reproduce itself, it should

be fenced so that the cattle will not destroy the small growth. I have observed Arbor Day for ten years, one fixed by myself. The first was some ten years ago ; I sent two men into the woods to take up some evergreen trees. They took up pine and cedar. As you all know, we live in a cold country, and I thought it would be a nice plan to set evergreen trees north of my buildings. I set those pine and cedar alternately, and they are growing and doing nicely and we are experiencing a great advantage in that direction. It does break the cold winds that blow over the hills and through the valleys ; when they strike our buildings they are a good deal mitigated by these trees. I believe it would be advantageous for us fruit growers and orchardists to set different varieties of trees. We cannot observe exactly one day every year. For instance, if we want to set certain varieties of plum, cherry, apple or pear trees, they do not come into the right condition at the same time and we could not do that on a fixed day, unless we do as Mr. Atherton has suggested, take them up beforehand and wait for the day to come.

Mr. MERRILL. As the gentleman has had experience in transplanting evergreens I would like to ask him what month is best for that?

Mr. BRIGGS. I would take up evergreens the last of May usually. I have set some several times, and those that were taken up earlier in the season did not flourish as well as those taken up later.

Mr. MERRILL. We have tried four months, sometimes the latter part of April and May, June and July, to transplant evergreens and I think the most successful time has been the latter part of June or first of July.

On motion of Mr. Knowlton it was voted, That in the opinion of this joint meeting of the State Pomological Society, and the State Board of Agriculture, the date of Arbor Day should not be later than May 1st.

Mr. AUGUR. May I make a single point in regard to what has already been said, on Arbor Day, etc. ? I have enjoyed these papers this afternoon exceedingly. It seems to me they are of a very high order. I think you ought to be congratulated upon having papers of such a character. And now, in connection with that, I would like to bring home one or two points and make an appeal to you. Before me I see gentlemen whose locks are whitened by the snows of many winters. At the same time I see some boys that look destined to make good citizens of Maine. Some of the most valuable of the

teachers in our State have been trained in Maine I am happy to say. I am going to assume in behalf of the school-house grounds of Maine, without knowing anything about it, that they may be something in the same condition as those in Connecticut. Almost all our rural school-houses have very small grounds, in some instances, only large enough to contain the school-house and a passage around it. Now wouldn't it be a grand idea, in connection with Arbor Day, if the people of each district would just move off in this matter by a little subscription or contribution to enlarge the grounds to half an acre or an acre to be devoted to thorough ornamentation. Let Arbor Day then be observed with zest and occupy that ground with trees and also have beds prepared for flowers. I believe the boys would like it; I know the girls would, and I think you all would. I believe your schools would be all the better.

Another thing. We occasionally hear a lady say "My grandmother when she was seventy years old helped set out that tree; we call it by her name; it is a memorial tree" or "my grandfather" or "my father," as the case may be. Plant these memorial trees, of course getting something choice, something that you will not be ashamed of, in connection with any of your friends, and then let them stand as memorials. Some of you may have heard of the great Weathersfield elm, which is claimed to be the best elm in the United States. It has a spread of one hundred fifty-two feet, is very symmetrical and very beautiful as well as very large. I will just give a little history of that tree. One of the early settlers went out to his pasture horseback one summer day, and as he passed through the low ground he saw a very thrifty and beautiful little elm, and he was so struck with its beauty that he got off his horse, pulled the tree up by the roots, and took it home horseback. The name of that man, in connection with that tree I think is better commemorated than it would be by marble or granite. It has found its place in history and he will be remembered in connection with it.

EVENING.

The meeting was called to order by the President, who introduced Mr. Lewis Frederick Starrett of Rockland, who read several beautiful poems, translated by him from the German. The following original poem was prepared for this occasion.

INSPIRATION.

By LEWIS FREDERICK STARRETT.

When not a sound is heard
By the dull ear,
Oft an inspiring word
Doth the soul hear.
'Twas so of old time, and
'Tis so to-day.
Well, if one understand,
If he obey.

Earth hath her Edens yet;
As of old, still
To man the task is set
To keep and till.
To him the voice saith: "what
Thou wouldst have, make;
Know that the ground is not
Cursed for man's sake.

"Nor think that thou wert blessed,
Did the soil teem,
With bounteous fruits, undressed,
Should it so seem.
Find in earth's torrid zone
Crops without care,
And see that man alone
Is a dwarf there.

"Study with watchful eye,
Plant, shrub and tree;
God gave them to thee, thy
Servants to be.
Food from what now is waste
Let them bestow;
Bid thou the tasteless taste,
And the small grow.

“No season’s slave be thou,
Rather its king.
Make each before thee bow,
And tribute bring;
Fabrics which thou shalt wear,
Fruits thou shalt eat,
Flowers that perfume the air
With fragrance sweet.

“What men on thee bestow
See thou dost earn;
That worth thy while to know
Strive hard to learn;
Be brave to cope with wrong;
Learn to endure;
Keep thou thy body strong,
And thy soul pure.

“That which is lovely, prize
For its own sake,
Then that which round thee lies
Fair thou wilt make.
Steadfast thy purpose hold;
So shall thy field,
More than its hundred fold
Unto thee yield.”

Prof. Carl Braun of Bangor, was introduced and read a paper on
“Insects Injurious to Fruits,” which he illustrated by means of
stereopticon views.

INSECTS INJURIOUS TO FRUITS.

By Prof. CARL BRAUN.

When Louis Agassiz came to this country in the year 1846 from Switzerland he was asked shortly after his arrival to lecture before the Society of Natural History in Boston. He was perplexed, knowing that he had not full command of the English language. When he stated this fact to the President of that body the latter gentleman smiled and said, "You can speak to us in any language you like; we will understand you anyway." I use this illustration as an introductory in regard to myself, not that I wish to place myself on the same level with that illustrious man nor to make you believe that I have deeply drank from the wells of wisdom in Natural History, but merely in regard to my nationality which expresses ideas in another language. I, like Louis Agassiz, then have to say, "It is not the thought which perplexes me," but to turn these thoughts into good English is the difficulty under which I labor. Nevertheless the truths of science, and particularly the descriptions of natural objects need no oratory. When the latter is applied to science it loses its value and becomes unintelligible. Therefore, trusting in your forbearance of overlooking all my blunders in speech, I have accepted the invitation of your honorable Secretary to speak to you to-night on the "Insects Injurious to Fruits."

The profit which we derive of all the insects in the world by no means small, sinks into insignificance when we on the other hand consider the depredations and ravages which the greatest number of them cause to vegetation in general. As cultivation of the soil, raising of fruit and plants is keeping step with the spirit of time, it seems that the ravages of obnoxious insects are likewise becoming more and more obvious. Therefore the live farmer and fruit raiser of to-day is constantly alarmed and fretted by the sturdy growing insect pests and looks about himself how to check and exterminate these unwelcome intruders. But before he is able to accomplish this task thoroughly, he is forced to study the nature and development of these intruders in order to find the best and quickest means of putting a stop to their ravages, in short, a progressive husbandman ought to be a naturalist in the very sense of the word. He has to deal not only with entomology but with almost every branch of the natural sciences.

The farmer can easily protect himself from the depredations of birds and other animals ; it is not so easy for him to do this in regard to the insects, and only the farmer and fruit raiser who has a good knowledge of entomology will be able to accomplish this thoroughly.

Having since my boyhood applied myself to the study of natural history in general and to entomology as a specialty, my advice to you, ladies and gentlemen interested in farming and fruit raising, is, you must be diligent students of the natural sciences if you desire that your labor shall not be in vain and that you may derive the profit which your work justly deserves.

The study of these sciences will lead you to thorough investigations by the means of which you will discover your enemies in every stage of development and you will then soon be able to apply the best and surest remedies to protect yourselves from those depredations, if not entirely yet to a greater extent than without the knowledge of natural history. Your labor will be doubly rewarded ; besides it will make you happy, fill your mind with useful and important truths, and you will prosper in the chosen part of your life's occupation. I wish to night I could enthuse every one of you with a love and admiration for the study of nature. You have the best opportunity, living as it were in the midst of nature's works, drawing from nature your resources ; you ought at least be grateful enough to pay sufficient attention to nature in studying her laws, which she by innumerable devices invites you to do.

But to my task. In order to give you a thorough insight of the insects I will mention in my discourse, I must classify them. We divide the insects into the following classes.

1. *Lepidoptera*, or scale-winged insects, including the butterflies and moths.

2. *Coleoptera*, or sheath-winged insects, comprising the beetles.

3. *Hymenoptera*, membrane-winged insects ; this order includes bees, wasps, and ants.

4. *Diptera*, or two-winged insects, of which the true fly is an example.

5. *Hemiptera*, half-winged insects, or true bugs, tree bugs, and plant bugs.

6. *Orthoptera*, or straight-winged insects, grasshoppers, locusts, and crickets,

7. *Neuroptera*, nerve-winged insects, including dragon-flies, etc.

8. *Aptera*, or wingless insects, aphidæ, lice, flies, etc.

THE DEVELOPMENT.

Insects come from eggs, which the female with parental care deposits on or near the food plant, that her progeny when born or hatched may find their food. Most of the larvæ (that is the insect in its second stage) feed on plants.

INSECTS INJURIOUS TO THE APPLE TREE ATTACKING THE ROOTS OF THE TREE.

The apple root plant-louse (*Schozoneura lanigera*). This insect sucks the juices of the roots causing thereby wart-like swellings in different shapes. They take away a great deal of our nourishment from the tree; when abundant will cause death to young trees.

Remedies. Scalding hot water poured freely on the roots, after being laid bare, will destroy the insect entirely. This insect has several enemies, which help to check its depredations.

ATTACKING THE TRUNK.

The round-headed apple-tree borer (*Saperda candida*). The female deposits her eggs near the base of the trunk, the young larvæ hatch in two weeks and at once make their way through the outer bark, into the wood of the trunk. It makes flat, shallow cavities in which it lives three years before it changes into a pupa. By the long duration of its larva state it causes great injuries to the tree. It may easily be detected by its castings, which fall from the cavities. While it is partial to the apple tree, it also attacks pear, cherry and shade trees.

Remedies. Scrape the bark, where the castings are, in August and September and you will find the larva; wash the place with alkali or a solution of potash. It has been proved that the female of this beetle will not lay her eggs on trees, treated in this way.

The flat-headed apple tree borer. This enemy may easily be detected by the discoloration of the bark. This beetle is common everywhere, east, south and west. It is a very active creature; it likes to bask in the hot sunshine, and when disturbed takes wings. The female lays her eggs under the bark in the crevices. The larva after hatching bores into the sap-wood, where it scoops flat channels and when full grown changes to a beetle.

Remedy. Cut the beetle's larva out and wash the wound with strong soft soap and solution of soda.

The Stag beetle, (*Lucanus dama*), a large and powerful beetle, a very common insect. The eggs are laid in the crevices of old apple trees. The larva takes six years in completing its growth, it is therefore very injurious. It is easily found by its castings; cut in and destroy it, wash the bark with alkaline solution.

(*Alaus oculatus*), the Eyed Elator, attacking the trunk of old trees. It is the largest of the jumping beetles; when laid on its back, it will spring up and right itself again. The larva matures in one season.

Remedy. The same as the former.

The apple Liopus (*Liopus facetus*). Attacking the branches. A small long-horned beetle. It bores into the decayed branches of the apple tree; it is easily detected by its castings.

Remedy. Cut the larva out, wash the wound with slaked lime.

The apple tree pruner. (*Elaphidion villosum*.) The habits of this beetle are peculiar. The female lays an egg in the axil of a leaf on a fresh green twig in the beginning of June. The young larva bores into the centre of the twig consuming in its course the soft pulpy matter. When approaching maturity it feeds upon the harder wood, cutting the twig almost through so that a strong wind will sever it from the tree. This action it performs with great skill. The fall winds will break the twigs and the larva stays over winter in the fallen limb, till next spring, when the new beetle cuts its way out of the wood.

Remedy. Gather all the fallen branches, as a rule, every spring and burn them up.

The apple tree tent-caterpillar (*Clisiocampa Americana*). A native of the United States. This, as every one knows, is a great pest to the fruit-raiser. The female lays her eggs in the latter part of July around the smaller twigs of fruit trees, apple and cherry, in clusters and rows of twenty and coats them with a gummy covering, they stay in this way the whole winter on the tree and in the early spring when the first leaf breaks forth, the young larvæ hatch and commence to spin a web enlarging it as they grow. They come to maturity in six weeks and have then, if not checked, almost stripped young trees of foliage.

Remedies. The best means of destroying them is to cut the twig with the eggs from the tree in the winter months; the tree having no leaves, the clusters are easily detected; be sure that you look at every tree, one cannot be too careful. If there should be some egg

cluster overlooked, the young web in the latter part of May will remind you of your friends ; then take it down with a long pole, round the upper end of which you have to tie a rag ; twist the pole into the nest, and the whole structure in company with the inmates will adhere to it. This should be done early in the morning or after sundown, when the inhabitants of the tent can always be found at home. Now burn them up ; this is the only safe remedy. Government should collect a fine from those who neglect to destroy this merciless enemy to the apple tree and other fruit trees.

The Forest Tent Caterpillar (*Clisiocampa sylvatica*). This insect resembles the foregoing very closely in all its stages. The eggs on the twig are cut off squarely on each end, while the others are rounded off. It makes no tent but congregates in masses during the time of moulting on the branches of the tree, where it can easily be detected and destroyed ; while it is partial to all the varieties of apples it is also found on the cultivated and wild cherry ; the egg clusters ought to be destroyed during the early spring months before hatching.

The Tussock-Moth (*Orgyia leucostigma*). The female of this insect is wingless, she lays her eggs on the top of the cocoon, rolls them up in a leaf and fastens them to a branch of the tree. One cannot help noticing these dead leaves during the winter months.

There are 300 to 400 small cylindrical eggs pasted to the cocoon ; they are covered over with a chalky matter ; they hatch about the middle of May, when they at once commence their depredations. They are very common and do a great deal of harm.

Remedy. Gather the leaves during winter and burn them.

The Red-humped Apple-tree Caterpillar (*Ædemasia concinna*). The female deposits the eggs in clusters on the under side of the leaf during the month of July. The young larvæ only eat the pulp, leaving the ribs of the leaf ; here they may soon be discovered.

Remedy. Pick the leaves and destroy the pest.

The Canker Worms (*Anisophteryx vernata*) and (*Ansopt. pometaria*.) The females of both species are wingless. The larva transforms in the ground. The eggs are laid in clusters on the branches of the tree in the latter part of September. The eggs hatch the next spring, the insect appears in the first days of September. They are some seasons very numerous and injurious

Remedies. Various measures have been employed to destroy the females, or keep them from climbing the trees to lay their eggs.

"This insect is a difficult enemy to deal with. I have often found the eggs on fences near the trees and have observed the young larvæ crawling to the ground and hunting for their food. It seems that tar, oil traps and other means, preventing the female from climbing the tree are quite useless, and comparatively without success; when the female cannot succeed in laying her eggs on the trunk of the tree, she will deposit them in most any place, and the young caterpillars will find their food. I believe when spraying for the destruction of the codling moth, a great many of the young caterpillars of this moth and other different insects, living on the foliage of the tree, will be destroyed by the poison contained in the liquid. This liquid should be a solution of Paris Green, two teaspoonsful to a gallon of water; this will kill the canker worm, the codling moth, and everything that is feeding on the tree at the same time. This has been tried and found the best method of destroying larvæ feeding on the apple tree.

The Fall Web-worm (*Hyphantria textor*.) After clearing the trees from the large tent caterpillars in the spring, the fruit-grower often is obliged to make another raid at the fall web-worm, which frequently infests his trees in September. The web is easily detected, and should, as soon as noticed, be removed. The moth is a small white insect. It hibernates in the pupa state in a slight cocoon and comes forth the next June or July. The fruit raiser by removing the web early and destroying its contents can easily get rid of them.

The Apple-leaf's Sewer (*Phoxopterus nubeculana*). It spans one inch across the wings, it belongs to the leaf-rollers (*Tortricidæ*). The eggs are laid in June. The larva is found throughout the summer on apple leaves, in which, when full grown, it rolls up and passes the winter therein, making the edges meet which then forms a case. The inside it lines with silk. By approach of winter the leaf falls to the ground with the larva; here covered up by the snow it spends the winter warm and snug. Some seasons it is very abundant and will then seriously injure the foliage. The dried leaves in the spring should be collected and burned. This should never be forgotten; a great many other insects in various stages hide among the leaves, and burning all the dry leaves in spring before these insects come to life again, should be strictly attended to.

The White Eugonia (*Eugonia subsignaria*). This is a small, white moth $1\frac{1}{2}$ inch expanse. While it is partial to the elm and shade trees it has of late often been found on the leaves of the apple tree. The eggs

are laid on the small twigs in patches of a hundred and more. It enters the ground when full grown and the moth appears the next June. Where abundant on apple trees it may be destroyed by spraying with Paris Green.

The Apple-tree Case-Bearers. (*Coleophora malivorella*.) In the early spring there may often be seen on the twigs of the apple tree little pistol shaped cases, each of them containing a small larva, which has the power of moving from one place to the other with this case. They are principally feeding when young on the buds, later they devour the leaves. They can be destroyed by hand picking.

The Apple-leaf Bucculatrix (*Bucculatrix pomifoliella*.) The larva of this small moth feeds on the outside of the leaf. This larva when disturbed lets itself down by a thread of silk to the ground. The insect is double brooded. The caterpillar attaches its cocoon to the branches and here it hatches. The second brood hibernates in the cocoon attached to the limb. Some seasons this insect appears in great numbers and then becomes very injurious to the foliage.

Remedy. The cocoons on the trees can be brushed with a solution of alkali; this fluid will penetrate the cocoons and destroy the inmates, or scrape the cocoons from the tree and burn them.

The Codling Moth. (*Carpocapsa pomonella*.) This little moth, as every fruit grower is well aware of, is the most difficult enemy to deal with. It is of foreign origin. It came to us from Europe about the beginning of the present century. It is found in almost all parts of North America and Canada, where it destroys a great many apples yearly and so causing a considerable loss to the apple grower. There are two broods of them. The first moth appears as soon as the blossoms open. The female lays a very small globular egg invariably in the eye of the apple just forming. In about a week the young larva hatches and burrows into the pulp to the core. It feeds then close to the core and in three weeks is full grown, it now leaves the apple and hides under the bark of branch or trunk where it spins a cocoon of silk. The larva is yellowish or pinkish, about one-half inch long with a horny brown head. The pupa is about three-eighths of an inch long of light brown color and hatches in ten days. This is the first brood of apple destroyers. Now the females after having paired, lay another batch of eggs in the later varieties of apples. Each moth lays about fifty eggs sometimes more. If left to their own way these intruders will soon spoil

the whole crop in an apple orchard. The moth is a beautiful little creature ; it spans about three-fourths of an inch, is of brown glossy color ; sometimes light-colored specimens are found. It hibernates in the larva state inside the little cocoon, or in the apple of which a great many, with approach of winter are stowed away in barrels.

Remedy. The most effective method of destroying this persistent and very injurious little intruder is spraying with a solution of Paris Green, as repeatedly has been proved. Two teaspoonfuls of poison to a gallon of water, well mixed, applied with a good syringe to the foliage. These syringes are now made for this purpose. The time of spraying for the early varieties is the first week in June, for the later fruits in July. The process should be repeated after a few days to make sure your work, especially when rain after spraying has washed the poison from the foliage to any extent. But be it remembered the trees should never be sprayed with Paris Green solution after the apple has turned downward on its stem ; this operation would be dangerous if the fruit is to be used later.

Besides, traps as recommended by many could be used to some advantage. They ought to be visited every week, twice, and the cocoons and larvæ found in them destroyed. All the fallen fruit should be carefully gathered and fed to hogs, or done away with, where the larvæ yet in the apple may perish. When collecting at night, with a lantern, insects, especially Noctuidæ with molasses I have often observed the females laying their eggs. Nothing will disturb them from their duty. One can almost put the light close on to them ; they will not stir. I have sometimes picked them off with my fingers, but in all my collecting which is a good many years, I have never caught a codling moth coming to my light, nor ever one at sugar smirred on the trees under their very noses. Whoever has invented the story that codling moths will take sugar must have mistaken the numerous other smaller Noctuidæ which he may have caught. It is folly to think of putting bottles with sweet stuff among the branches of trees ; at least my experience of twenty years has proved it to me to be so. I would further recommend the burning of sulphur in little saucers here and there, one under the trees at night in beginning of June. This process has been tried in Germany of late, with great effect.

The Apple Maggot (*Trypeta pomonella*). This insect as I am informed by your Honorable Secretary, Mr. Boardman, has done here, in the western part of the State, a great deal of injury to the apples.

It has also been reported from Massachusetts, Connecticut and New York. The fly appears in July; with a sharp ovipositor it inserts its eggs into the apple. It frequently attacks apples which have been previously perforated by the codling moth. It is said to prefer thin skinned summer fruit to the winter varieties. There is only one brood of this insect; it enters the ground for transformation. If this enemy should become troublesome to the fruit-raiser it would be a dangerous one to deal with; but it seems that being a fly the whole tribe is not very abundant every season. As I have not yet observed this pest, I do not know what remedy.

The Twig Girdler (*Oncideres cingulatus*). The young larva burrows into the wood and feeds on it; here it transforms to a pupa. The twig having been girdled by the female will easily break off with the fall winds. The pupa winters in the fallen limb on the ground; the beetle appears the next season. All the fallen branches should be collected in the early spring and destroyed by fire. There are a good many other species hidden away in fallen branches and the orchardist should be very careful in collecting them every spring and burning them up as a rule.

The Pear-tree Slug (*Selandria cerasi*). This is a saw-fly, having a small ovipositor in a shape of a saw. With this instrument the female cuts slits in the leaves and inserts an egg in every slit. The slugs are covered with a bluish slime, which is disgusting to behold; it has a strong repugnant smell, they eat holes in the leaves. When full grown it appears in a clean dress, descends to the ground and transforms and hatches in about three weeks. In the middle of July the new females deposit a new batch of eggs.

Remedy. Hellebore, in powder, mixed with water, in proportion of one ounce to two gallons of water, applied to the foliage with a syringe, will kill the slug. On small trees air-slacked lime dusted on the foliage will be of good effect.

The Plum Curculio (*Conotrachelus nenuphar*). The larva burrows into the flesh and feeds around the stone; when full grown, in three to four weeks, the larva enters the ground and transforms. It remains over winter in the beetle state, and comes forth again next spring.

Remedy. The beetle can be easily destroyed by shaking the tree and spreading a cloth under it; they will fall, and may then be destroyed. The tree should be jarred when in blossom, and to be continued daily, mornings and evenings till they become scarce. It is very

important that the fallen fruit be gathered and burned, that the larvæ contained therein may be destroyed. Also here the practice of burning sulphur is a good remedy to drive the beetle away.

The Imported Currant-worm (*Nematus ventricosus*). This insect is a saw fly ; it comes from Europe, first noticed in America in 1858 ; according to Mr. Harris, it has within this comparatively short space of time swept over almost all the Union and Canada. It is a very injurious as well as persistent enemy. Very early in Spring the fly appears. The female lays her eggs on the under side of the leaf on the center veins in rows. In ten days they hatch. At first they eat small holes in the leaves, but as they approach maturity they eat the whole leaf. Most every fruit grower will have observed this pest in his garden. Very often they strip the bush entirely. After maturity they enter the ground for transformation. There are two broods of this pest, the first appears in June and the next in August, the latter changing to pupæ before the winter sets in.

Remedy. Visit your currant bushes often after the leaves have come forth, and you will readily detect these pests. Ashes and dust will not kill them. When the larvæ are small the leaf where they feed in groups might be picked but if not disturbed till almost full grown syringing with hellebore or hand picking are the only remedies. Air slacked lime around the roots is a good remedy and helps to keep the larvæ from entering the ground. The pupæ may always be found in early May around the roots three to four inches under ground, and a good many may in this way be destroyed.

CLOSING REMARKS.

I hope I have succeeded with my rambling remarks in proving to you that these facts which have been presented to you to-night are very important to know and to understand, and that everyone who loves nature will join us in exclaiming : O, how wonderful is nature ! Would we then not delight in the study of these works of nature ?

It will not be difficult to show to everyone who asks the question, whatever his age, profession or pursuit may be, some benefits which these studies can bestow. They have one decided advantage over almost all others ; they bring at once the body and the mind into action, since everyone who has anything of the naturalist about him, leaves his books and the narrow enclosure of his study and goes forth into the open field of nature. It is manifest that pursuits which

thus excite the physical and intellectual powers, remove the unnatural inconsistency, which perverted education has established between study and action. It certainly never was intended that while the mind is exerted, the body should suffer of inaction, nor was it any part of the design of Providence, that those who live by the labor of their hands, should leave their minds forever inactive and barren. It seems that the studies in question reunite what man has unwisely separated and are therefore best suited to our nature. The love of nature seems to be born in the soul of man; it strengthens with his strength; it has much power where it has never found a voice, among those who are thrown into familiar intercourse with nature. Even boys, the most merciless of destroyers, have their pet animal and show some humanity for their playful charge. The birds, too, not only the familiar robin, but the wild oriole and the retiring warbler, sing with confidence, believing that some will listen to them in the rattling streets, as well as in the Sabbath stillness of the village. Who does not rejoice in the spirit-like song of the bird, when he comes to assure us that spring has come; or when he hurries from the north, as soon as he hears afar off in the mountains the first murmurs of winter storms. He seems conscious of man's attachment; he lingers long after the last leaf has fallen.

The love of nature in life explains the fact that in our communion with nature, we never feel alone. We feel solitary when we do not find man among the works of man. A deserted house is one of the dreariest places in the world. But we feel no such overpowering sense of loneliness among the works of God; there is reverence and awe indeed, when man stands on the seashore, when he gazes on the expanse of the desert, or when he stands at midnight on the deck of a vessel in the heart of the seas. Why is it so? Because we are forced to reverence the works of Him who does all things well. Then let us say with Gæthe:

"Let us walk to yonder rock,
Where the waterfall leaps in the bosom below.
There on the rocky shelf, under the shade of the hemlock tree
Let us rest and repose,
And think of the wonders here below
Wrote by the hand of Him who knows
To reveal the wonders of the future."

THIRD DAY—FORENOON.

BUSINESS MEETING OF THE SOCIETY.

A meeting of the Society for the transaction of business was called to order at 9 o'clock, Vice-President Nelson in the chair.

Mr. D. J. Briggs in behalf of the committee to examine the fruit on exhibition, reported the names of exhibitors and the number of varieties shown by each :

D. P. True, Leeds Centre, two varieties of pears, and fine specimens of Swaar apples ; Mrs. E. T. Spring, New Gloucester, four varieties of apples ; S. Hicks, New Gloucester, five ; L. H. Blossom, Turner, twelve ; Charles F. Merrill, seven ; Josiah Walker, Strong, a seedling to which we call the attention of the Society for further action ; O. C. Nelson, New Gloucester, two, Hubbardston and Nod-head ; W. H. True, New Gloucester, two ; F. McCann, New Gloucester, eight ; D. J. Briggs, South Turner, ten ; J. L. Davis, six, four varieties with no registry ; G. K. Staples, Temple, thirteen ; J. H. Ward, New Gloucester, three ; J. W. True, New Gloucester, fifteen ; C. S. Pope, Manchester, four. In all there are one hundred plates on exhibition.

Many of the single plates are very fine. In our opinion the best exhibition is shown by G. K. Staples of Temple ; the second best by J. L. Davis, New Gloucester ; third by J. W. True, New Gloucester. We make special mention of a plate of Bellflowers, shown by C. A. Fogg of New Gloucester, also a plate of King Tompkins by Mrs. E. T. Spring of New Gloucester.

Mr. D. H. Knowlton, for the committee to whom was referred the president's address, reported, and the following recommendations were adopted :

That the executive committee make such modification of the exhibition rules as shall secure to our annual members such rights as they are entitled to in connection with our annual exhibition, and that the same be published with the exhibition rules.

That in case our annual exhibition is held with the State Agricultural Society, the executive committee be instructed to arrange a programme for the evening meeting proposed by the State Agricultural Society, and that the committee be instructed to announce the same by such advertising as may seem best to them.

That the executive committee make such revision of the premium list as may seem for the best interests of the society.

That a standing committee of five be appointed by the president, secretary and treasurer, whose duty it shall be to make a revision of the society's catalogue of fruits, and that the results of their investigations be furnished the secretary for publication.

That our Congressmen be requested to use their influence in securing the passage of the bill before Congress reducing the rates of postage on seeds, bulbs and plants sent through the mails.

That in the opinion of our respective bodies the rates of postage should be as low as the rates made for similar service in the Provinces and other foreign countries.

That the Secretary be instructed to forward a copy of the same to our members of Congress.

On motion of Mr. Atherton a vote of thanks was extended to the citizens of New Gloucester for their cordial reception extended to us, and their generous hospitality. Also to the Maine Central Railroad for reduced fares over their road.

Mr. Haskell of New Gloucester, expressed in behalf of the citizens, the pleasure the meetings had afforded them and thanked the two organizations that had presented to them so much useful and practical knowledge of fruit culture.

PUBLIC SESSION.

Hon. Z. A. Gilbert read a paper showing the results of his inquiries regarding the Red Russet.

THE RED RUSSET.

By Z. A. GILBERT.

Several years ago I had my attention called to samples of apples named Red Russet, and not then having any knowledge of this variety my interest was awakened at once and I proceeded to "read up" on this variety and post myself on its merits. The history of this variety, so far as known, is here given.

Supplementing the matter of history, I sought to learn the appreciation in which this apple was held by our fruit growers. Inquiry was made through the agricultural papers and resulted in the receipt of letters from various parties who were growing the fruit, some of which are given herewith:

In the appendix to the Agriculture of Massachusetts for 1880 is an extract from a report of a committee of the Essex County Society on fruit, in which it is stated that a variety of apples was referred to in the report of the committee of a year ago, said to have originated by a cross of the Baldwin and Roxbury Russet; and as little was known of its origin and some persons doubted the theory of cross-grafting, the matter had caused much discussion. Accordingly at a meeting of the trustees of that Society, the committee on fruit were requested to obtain information as far as possible as to the origin and value of this, said to be, new variety of fruit, and make report thereon.

The committee applied for information and received the following letter from W. H. B. Currier of Salisbury :

SALISBURY, MASS., July 17, 1880.

TO MR. J. HOWE.

My Dear Sir: Yours of the 2d inst., received; I regret that I was not present at the last meeting of the trustees, although I might not have been able to satisfy the inquiries made concerning the apple you speak of. The whole matter has been talked over with Mr. Hill some months since who has gathered many facts. Mr. Hill visited the farm where Mr. Lucy purchased his apples, and at the time they were stored in the cellar. Hill pronounces them the "Red Russet," and has raised them for several years. They originated on the farm of Aaron Sanborn of Hampton, N. H., who had an orchard of Russet trees, and Mr. Lewis Sanborn grafted them into Baldwins. All the trees so grafted, but one, bore Baldwin apples. From this one graft originated the Red Russet. This was about the year 1840, as near as can be ascertained now. Therefore it was what fruit-men sometimes call a "sport," a very unusual thing in fruit culture, but common among plants.

The Red Russet is remarkable for its keeping qualities, *under certain conditions*. It requires a cool cellar, and the apples must be headed up, or they are liable to "shrivel." It is a great bearer and a good grower, but I am informed it has one "out;" it bears only every other year.

The gentleman who raised the fruit is dead, but the facts were gleaned from his family, who only remember the grafting of the orchard and its results. One fact I failed to learn whether all the grafts upon *the one tree* were of this variety or only one or more of them.

Very respectfully yours.

W. H. B. CURRIER.

The committee go on to say :

"Some time last winter an article was published in one of the Boston papers saying there had recently been a meeting of the

Massachusetts Horticultural Society in Boston, and the subject of cross-grafting had been discussed for the third time, and that apples had been received from Mr. Geo. F. Eastman of South Hadley, a variety said to have originated by a cross of the Baldwin and Roxbury Russet; and we were informed that they were pronounced at the meeting to be the Red Russet."

"We immediately wrote to Mr. Eastman for information on the subject, and soon after received the following reply: His father many years ago planted a nursery, and budded or grafted it with various kinds of fruit. Finding a deficiency of Baldwins, he grafted or budded a portion of the Russets to Baldwins. When the trees commenced bearing, one branch of the Baldwin tree bore Russets; that branch was removed that the whole tree might be Baldwins. After this branch was removed, another branch which grew out of the tree directly above that which was removed and had previously borne Baldwins, produced what is now called Red Russet,—red and rusty, as one would suppose they would be, being a cross of the two kinds. They are said to keep as well as the Russet, and bear every odd year. Mr. Eastman sent us some of the apples which we carried to a meeting of the board of trustees of the Society in June, and they were pronounced the Red Russet."

It should be known and remembered that the committee making the above report were searching for information bearing upon the mooted question of the influence of the scion on the stock, and incidentally only weave in this bit of history of the apple under consideration. Without in any way endorsing the claim here, not merely hinted at, but confidently laid down as the result of cross-grafting, we drop this report of the committee. It is the history of the apple we are now after.

In Cole's Fruit Book, published in 1849, is the following description of this variety:

Red Russet. large, flattish round; russet half covered with red; flesh firm, crispy, juicy; of pleasant, rich flavor; late winter and spring; great grower and bearer; new and promising. It seems to be a cross between the Baldwin and Roxbury Russet. Origin, farm of Mr. Aaron Sanborn, Hampton Falls, N. H.

Mr. Cole writing so soon after the introduction of the apple to the attention of the fruit-growing public may be relied on as giving the origin of the apple so far as it was known. Just how it "seems to be a cross" does not readily appear.

In reply to my circular letter, that lamented member of our society, Alfred Smith of Monmouth, wrote as follows :

Mr. GILBERT,

Dear Sir:—I will give you what little knowledge I have of the apple inquired after. The scions were brought into Monmouth from New Hampshire twenty years ago or more, by men who came into Monmouth and grafted an orchard on the farm of Charles T. Fox, in my own neighborhood. There is one tree grafted in an orchard in North Monmouth. It has not been much disseminated in Maine. I sent scions to a man in South China. It keeps as long as the Roxbury Russet. This is about all I can say of it.

Truly yours,

ALFRED SMITH.

Dr. True of Bethel, wrote as follows :

Dear Sir:—I have raised the Red Russet for twenty-five years, but regard it as almost worthless. It cracks the worst of any apple I ever grew. Once in a few years they will not crack, but even then have no great redeeming quality. They will keep till summer, and may serve as a poor substitute for something else. I cannot advise any one to buy or graft this variety so long as there are others so much better. The only use I could ever make of it was to make sauce of it to go with green rhubarb.

Yours,

N. T. TRUE.

Another correspondent writes :

NORWAY, Jan. 25th, 1883.

Z. A. GILBERT, Esq.,

Dear Sir:—Noticing your inquiry in the Maine Farmer of recent date, desiring information about an apple known as the Red Russett, I have raised it for ten years, and think highly of it. The tree is quite as vigorous as the Baldwin, and I think more hardy; bears profusely alternate years, and lightly intervening years. It keeps in good condition much later than the Baldwin, and is a better eating apple, keeping sound to the core to the end. It is not cultivated to any extent, there being no bearing trees in Norway to my knowledge. It has never been on exhibition at our county fair, except by me.

It originated in New Hampshire in a very peculiar manner which I do not accept. [Here is reported the same statement before given.]

I think so much of this apple, were I going to set another orchard I should plant largely of this.

Please excuse my pencilling as I am an old man and my hand is rather tremulous.

Yours truly,

R. H. RIFTEN.

Mr. S. R. Sweetser writes :

I have grown the apple for about twenty-five years. The tree is a very stocky and rapid grower, resembling the Baldwin in this respect. A large part of the fruit appears to be genuine Baldwins, while others on the same tree are inclined to be rather coarse and russetty.

The following was received from G. H. Andrews, Esq., of Monmouth :

MONMOUTH, Jan. 18, 1883.

Mr. GILBERT.

Dear Sir:—In Monday's Lewiston Daily, I noticed an item from you respecting an apple called Red Russet. In my young orchard I have a few trees of that variety. None have fruited as yet, but one. It bore something more than a peck last season. The tree resembles the Baldwin in very many particulars, so much so I had taken the tree for a Baldwin, the shape of tree and leaf and the color being the same.

The fruit bears a striking resemblance in shape and color, still there is a difference in both flesh and skin. The flesh is finer grained and closer, of a rich color. The rind or skin is a little thicker, tough, more like the common Russet. Color, russetty brown and red. I am of the opinion that the fruit would be preferred to the common Russet. As to fruitage I am not able to speak. From the appearance now of those I have on hand I should say they were good for keeping.

Mr. Andrews has more recently informed me that he is now growing this fruit in considerable quantities and he states that it is doing as well by him as the Baldwin.

NEWBURGH, N. Y., Nov. 30, 1883.

FRIEND Z. A. GILBERT:—Your letter at hand, and am very glad to hear from you again, and in reply state that the Red Russet has not been cultivated here to any extent, and only for home use, and is much liked for its late keeping qualities, and that is what I recommended it for. It is much like the Baldwin in quality and color, except that it is considerably russetted. It keeps as well as Roxbury Russet, and is of better quality, and I would think sell better in the market; and if it succeeds well in your State, it will no doubt prove a valuable apple to ship to Europe. I have long thought that apples grown in Maine would be better for shipping than those grown here, yet I think the quality not quite as good.

Very respectfully,

CHARLES DOWNING.

Hon. Rufus Prince, President of the Maine State Agricultural Society, followed with a valuable paper.

WILL THE PRESENT OUTLOOK WARRANT THE ENCOURAGEMENT OF FRUIT GROWING IN MAINE?

By Hon. RUFUS PRINCE.

There are several questions that enter into a paper upon this subject which must be answered in the affirmative if we are to encourage fruit growing to any great extent.

First. Can fruit be grown with certainty of ripening in this State? All will doubtless with one accord answer in the affirmative.

Second. Are our soil and climate adapted to fruit growing? The answer to this may need some qualifications. If we take the hardier varieties of not only apples but pears, cherries, plums, etc., no part of the civilized world is better adapted to raise them than our State. If we are to try fruit growing upon a large scale we must not be captivated by stories told of the excellent qualities of new and untried varieties, neither can we expect one variety to succeed well in every climate for a variety may be without hardly a fault in one locality and be nearly worthless in another; for instance, the Baldwin is perfectly at home in its native soil of Massachusetts while with us it must have a favorable locality or it will be found to be black hearted and unsound. In the former State it has hardly a fault while in our latitude very few trees can be counted as entirely sound, and thousands of dollars' worth are killed outright yearly. Still with us it is, in favorable localities, perhaps, our most valuable apple.

Downing well says that "the apple is the world renowned fruit of temperate climates. There is no other fruit that is so universally used or generally esteemed." It is without doubt the last fruit to be spared, it being the best for all purposes raised in the known world. Its keeping qualities, its many forms in which it may be and is used, the many forms it is preserved so that it can be transported to all parts of the world, render it valuable beyond any other fruit. With a fruit such as this shall we say that we cannot compete favorably with others? Is not Maine better adapted to compete with her sister states in growing late keeping apples than in any other crop? If not what is the crop? I believe that if we cannot compete in this crop we cannot in any. I believe that nature has fitted our State for the purpose of growing late keeping, hardy varieties of apples, and if we compete in the crops that nature intended we should, we shall succeed. Cannot we rely upon as good returns for the labor

spent in our orchards as from other parts of our farms? And if so, is not the future outlook such that we, who have had nearly a life-long experience in fruit-growing can encourage the young man to extend his orchards? or shall we say to him, raise fruits sparingly?

It is but a few years since that our market for fruit was only our large towns and villages in our immediate vicinity. Later it extended to our larger distant cities and occasionally buyers came among us to purchase for other more distant markets.

Gradually new markets opened until now State of Maine fruit is quoted in the price list of many a foreign city and quoted too, higher than that of any other State. New outlets are opening so that to-day, no fruit-grower has any fear that he cannot sell his surplus. The only question is the right time. Late keeping Maine apples stand at the top of the market in the larger foreign cities, and if we put them up honestly we may be as sure of selling them at paying prices as any other crop we raise upon our farms. With our new markets, with our proximity to the seashore, where we can easily ship to any market in the world, I feel like saying to the young man, not the language of Horace Greely, "Go West," but "stay in Maine, set out an orchard and when that one is set, try another and another. Make it a life business and you need have no fears but what success will crown your efforts." The great drawback to us, as Maine farmers, we were brought up to do business on too small a scale.

Our ancestors commenced farming with about one hundred acres each and these divided between woodland, pasturage, grass, grain, roots and orcharding having a small area of each, and this idea of small farms has been handed down from generation to generation until the idea of that size has become so fixed, that if any one increases the number to even double that amount with half a dozen acres devoted to orcharding he is known as a *great* farmer.

Now transport the Maine boy to the west where everything is changed and you will soon see him changed to correspond with the place. You will soon see him with his hundred acres of corn, the same in wheat, hundreds of head of neat stock, swine almost without number and we at home stand with open mouths and hear with wonder the stories told of the amount he raises (but always with little reference to prices); of the wealth he is accumulating.

Now, brother farmers, if we expect to make any march in farming we must extend our operations. We must imbibe some western push. We must not expect to be successful in trying to make auger

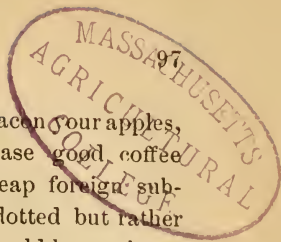
holes with gimlets, if we do, we shall after trying through life in the end find our mistake and feel disappointed, feel that our State is only fit to emigrate from. If we could put the same energy into orcharding in Maine that they do in grain raising in Kansas, would it not be said that Maine was not only a good State to emigrate from, but to?

Suppose, Mr. President, that your, at present, comparative large orchard of a score of acres extended from your humble home in Manchester to our State capitol, a distance of four miles, that in riding over the hills between these two places in the spring time, as far as the eye could reach nothing could be seen but the pink and white apple blossoms of the great Pope orchard. Could there be painted a more beautiful panorama? If so, it would be a painting of the same orchard in autumn loaded with luscious fruit of all shades from white to the darkest crimson. While we should look upon an orchard like this one of enormous size for our State, it would be insignificant compared with some of the wheat farms of the great West. Still, Mr. President, when you stood and saw train after train loaded with the product of the great Pope orchard you would be not only the most independent man in the State but you would be the envy of the most successful in any other walk in life.

Were I to live my life over again with my ideas of to-day, it would be devoted to orcharding. It would be the height of my ambition to have not only the largest but the best fruit farm in my native State. To see car after car-load of my fruit leave for foreign markets. In short, to be the great apple Prince of Maine.

Does any doubt that it would pay at least as well as any other industry? If so I would like to have him stand up and tell us why. There is a large and yearly increasing foreign demand for Maine apples. If we wish for this demand to increase, if we wish to not only keep up our reputation, but even gain a better one, we must do at least two things. First, be ready to supply that demand so that other markets will not be sought. Second, always have our fruit what it is represented to be, not have a purchaser upon opening a barrel of apples find No. 1 on top and 2 or 3 in the middle. I fear that unless something is done to prevent cheating in putting up our apples for foreign markets our reputations must suffer and our pockets with our reputations.

Do we not complain when we find molasses that we purchase for first class a large per cent glucose, our spices, sugars, teas and coffee largely adulterated?



When, brother fruit-growers, you feel tempted to deacean your apples, think how you feel when you think you purchase good coffee and when you drink it and find it largely some cheap foreign substance. I would like to see our granite hills not dotted but rather covered with orchards, so that when in bloom they would be one large bouquet. Would there not, if there were fifty, yes, one hundred, bearing apple trees in our State where there is now but one, be buyers from all parts of the civilized world, scouring the country to purchase our fruit and would not Maine be one of our richest States?

I would by no means advise all to try orcharding upon a large scale, for many would not succeed, for a person must have a taste for it the same as for any other calling.

When I have a man at work on my farm and I see him, while mowing beside the wall, mow down without noticing fruit trees that I have carefully left, I do not advise him to set an orchard, but when I find every little tree in his swath left and carefully mowed around, I can say with confidence, young man, buy you a farm that is natural orchard land and raise a nursery, or set all the trees you can raise or purchase and you will soon have an income that will astonish the man with his money at interest. Doubtless many will ask how they can keep up the fertility of so large an amount of orcharding. Pasture with sheep and swine and you will have better apples than in any other way, less worms and borers and no mice.

As experience in anything is better than mere theory I will simply say that although the past year was an off year in orcharding, still my fruit raised in sheep and swine pastures will bring me in the snug little sum of seven hundred dollars. On the orchards from which nearly all my fruit was raised there has not been fifty dollars' worth of dressing used for the past fifteen years, except the droppings of the sheep and swine as they have been pastured therein.

Cannot the Maine State Pomological Society in view of our peculiar adaptability for growing the hardier varieties of fruit, our facilities for transportation, both by land and sea, in view of our healthy climate, our schools and churches, our most excellent rural population, our freedom from pestilential sickness and western cyclones, say in confidence to the young man, "stay in Maine and make an extensive business growing fruit?"

DISCUSSION.

Mr. ATIERTON asked whether the origin of the Red Russet was from hybridizing or from ingrafting.

Sec. GILBERT. I understand that the opinion of those who have investigated the matter is that it was simply a sport in the first place and from that sport there had been propagation into other trees and thus it became an established variety.

Mr. SWEETSER. I exhibited at our pomological show one year some of the apples which some of our best informed men pronounced genuine Baldwins; and others of which they did not feel certain but which they pronounced Roxbury Russets, saying they hardly knew whether they were so or not. When I sold my apples year before last I put most of my Red Russets, except the most russetty ones, right in with the Baldwins. Nobody could tell the difference.

Mr. MERRILL. I think the Red Russett is a good shipping apple. I have had some experience in shipping Red Russets this winter. I have been buying in the vicinity where this Red Russet originated—in Salisbury, Northampton and Exeter. In one purchase that I made, of 352 barrels, I think 50 were Red Russets. I objected to the Red Russets for this reason: Not being known in the Liverpool market, I thought it would be difficult to sell them. But they resembled the Baldwin so much in quality and color that I concluded to buy the lot and stencil them Baldwins, and I must say the 352 barrels proved profitable; they sold well; there was no complaint of there being two varieties. I thought it would be well, in the season of Baldwins, to stencil them Baldwins. I thought no one would be cheated in buying them for Baldwins, for they were of good form and color, and I thought they would stand well. They resembled the Baldwins so much that I thought I would risk it. They looked more like a Baldwin than a Russet. I decided to mark them as Baldwins.

Question. How did they compare in quality, for eating?

Mr. MERRILL. I am not an expert in the flavors of apples, but if I were going to buy a barrel of apples to use I would take Red Russets as quick as Baldwins, and even quicker if I were buying to eat later in the season.

Mr. BLOSSOM. I think we had better take up the next paper which I believe to be of more interest to us as a fruit growing com-

munity than the one variety of Red Russets. I was very much interested in the second paper, knowing that the worthy gentleman has told us some of his valuable personal experience. I can remember when that gentleman set his first orchard. Most of us can remember when we reckoned our crops of apples by the bushel and the man who raised a hundred bushels of apples was almost an apple king. Then we began to reckon our crops by the barrel. Now we reckon by the car-load, and the more we raise the better they sell. I think, as has been said, that the outlook is good for fruit-raising in Maine, and that all our hillsides should be covered with fruit trees. If you could go through our town and see where the honorable gentleman lives, you would find that he has carried out to the very letter the advice which he has given us here to-day. After he got his first orchard started he set out another, and not being satisfied with that, he has tried to buy all the land that joins him and set that out in orchards. He says, "Boys, stay at home; do not go west." I shall heartily concur in that. I have been there and know what it is. I was satisfied; did well, but I came back here and I am satisfied. I took the advice of the honorable gentleman in setting out an orchard and kept at it. The more apples I raise the more I want to raise and the better they sell. And I say the same to you; set out an orchard; beautify your homes in that way and you will keep your boys at home. Keep them out of the cities; they don't belong there; they belong on the farm.

Interest your boys in fruit growing and they will not want to go away; they will stay where they belong, at home.

Mr. BOARDMAN. The name of S. W. Cole has been mentioned. Every fruit grower in Maine owes much to him and his early efforts in regard to fruit growing in our State. We want to honor him as a Maine man. He was born in Cornish, York county, in this State. I was glad to hear his name mentioned here, because, as I have said, he is a man to whom we owe a great deal and we honor him as a Maine man.

Sec. GILBERT. I appreciate Mr. Cole's efforts. We who are here to-day owe our success in fruit growing more to his wise counsel than to that of any other man known among us in those early days.

I would like a moment of indulgence further in regard to this subject of the Red Russet, as I would like to have this history complete as we have now made an attempt to put it on record. I believe Mr.

Augur has some information in regard to the apple and if he will submit it now it will be a pleasure to me.

MR. AUGUR. I think the Baldwin has its defects, even in Connecticut being killed once in a while during an exceptionally bad season. Yet we find that to have an orchard the most profitable it should be all Baldwins. But knowing the defects of the Baldwin apple the question has been in my mind for several years, what can we look to to take its place? There may be an improvement. We ought to have an improvement. We ought to be getting hold of something in case we should find, by heavy losses, discouragement sufficient to almost discard the Baldwin, when we should want to fall onto something else. For some years we have had the Red Russet in our nurseries.

All I can say personally is in regard to how it has behaved with us. As a nursery tree we like it; we like its habit of growth; and from what experience we have had I shall be inclined to give it the preference over the Baldwin. It has grown beautifully with us, and I have said to people: "Here is something that purports to be a cross between the Baldwin and the Roxbury Russet. Why don't you try it?" We have offered it at the same price, of course, as the Baldwin; but we find people exceedingly slow to take hold of a new thing. We want to be on the alert, and if there is any improvement in prospect or any probability of it we want to be on the lookout for it and have the advantage of it.

In connection with the admirable paper which Mr. Prince has given us, it seems to me that, while it undoubtedly would be well to be cautious about making any large ventures at first, until you are sure of your ground, it does seem to me that the Red Russet, from what I know personally and from what I have heard of it, is one worthy of a fair trial in this State. And it may be that you will find it of sufficient value to adopt it as one of your standard apples, if not the standard apple. Because a healthy vigorous tree whose fruit has the merits that have been described here including that of being a late keeper, has strong points to recommend it to the people of Maine it seems to me.

You raise apples that surpass ours, at least judging from the beauty and color of your fruits here. My own experience would rather lead me to think that the Red Russet is not quite equal in size to the Baldwin; but in perfection I should think it was fully equal and

it does seem to me that the tree has an advantage over the Baldwin though I do not feel fully confident of that.

Sec. GILBERT. Allow me to add a few words which I thought best to omit from the paper read, in regard to what I have learned from personal observation and conversation here in our own State. Since I have had the matter under inquiry it has been my purpose to learn all I was able to in regard to the character and habits of growth of this tree and the merits of its fruit. I find it scattered around in various sections among the orchards of our State, grown to a limited extent, and yet the testimony in regard to it is universally the same and such as has been brought out here. The wood is not the Baldwin wood; it is a finer grained, firmer wood, corresponding very closely with the character of the fruit itself as compared with the true Baldwin, a firmer, solidier, heavier wood than the Baldwin. To me, therefore and those whom I have consulted, it appears to be a rugged healthy tree, in form and general appearance very much like the Baldwin and in bearing properties very similar. So far the apple has no distinction in the market; they pass as Baldwins, as Mr. Merrill has stated, without question on the part of the purchasers. The distinction of apples borne on the same tree, I have not been able to find to exist generally, only so far as color is concerned and the russetty appearance. There will be a difference in that respect; some will have a clean, smooth skin while others will be russetty; and generally the red is deeper than that of the Baldwin.

Mr. SWEETSER. I would like to hear from Mr. Augur something in respect to the apple maggot.

Mr. AUGUR. I will say in reference to the codling moth, as an introduction, that within a year or two we have settled upon it as a rule to spray our trees pretty thoroughly with either London purple or Paris green. it doesn't matter which. We have been exceedingly troubled with the apple maggot; so much so that it has broken our confidence in some varieties of apples, so that we have hardly dared to sell them, we have found them so generally affected by the apple maggot. We have found, as it is admitted now by everybody, that a spraying with some arsenical poison is a complete, or very nearly complete, remedy against the codling moth. The matter of spraying we make a very thorough one, perhaps more so than we need to; but I think the trees ought to be sprayed two, if not three times, to be perfectly sure of getting 80 or 90 per cent of the apples free from worms. Last year our orchards bloomed well, and we gave them a

very thorough spraying. To our surprise, those varieties which had hitherto been badly affected by the apple maggot, last fall we found almost completely exempt as they were from the codling moth. We found occasionally a specimen, enough to show that we still had it, but not enough to interfere with the marketing of the fruit. It is said that one swallow does not make a spring, and I would not say but our exemption from the maggot may be due to some circumstance that we do not understand. It is not proved yet that it is owing wholly to the application of the poison to our trees, but we are strongly inclined to think that that had a considerable influence. If we know just how the insect feeds and the season of its appearance and disappearance, it will be of great benefit to us. I think there is something in this that we should be able to get hold of, and, at present, I should say without hesitation that I have so much confidence that the insecticide had an effect in ridding us of the maggot, that if the codling moth was entirely gone, I should still use the poison for the apple maggot, not knowing anything better to do. It seems, as far as our experience is concerned, as though we had nearly escaped it.

Mr. SWEETSER. Would you recommend using the spray as late as this small fly works on the apple? I find them at work on my yellow transparent apple a very short time before they are ripe. I think on some of these early varieties they work until they are ripe, and it seems to me that it would be dangerous to spray the apple so late as that; that it might carry away the poison.

Mr. AUGUR. That is a matter that should be thought of. I think on the early fruits I should object to using the poison just before ripening. And just in that line I would like to say a word. There is quite prevalent among fruit growers a prejudice against the use of the poison at all, lest there should be some evil results from it. Dr. Jenkins, of the Connecticut Experiment Station, was present at the meeting at Norwich a year ago last winter, and I asked him if he would not study into the matter and give a little report on the possibilities of poisoning from the use of Paris green or London purple on fruit trees and potato vines. He made some estimates in regard to it and gave this as his statement. He says, "if you use a pound of Paris green to the acre every year for twenty years there would not be enough in a square yard of the earth as far as the soil goes, to be a medicinal dose for an adult person, if the whole was active;" "but," said he, "in any soil that contains any admixture of iron the

arsenic is neutralized in a very short time so that it becomes inert." So, taking these two things into consideration, there was no possible ground for fear of using these poisons to any reasonable extent. And a pound to an acre I believe is sufficient at all events, for a teaspoonful of Paris green, if it is strictly pure, is sufficient for a pail of water, and that would be all sufficient for one tree, and perhaps more than enough unless the tree is of pretty good size.

Mr. ATHERTON. Professor Cook recommends the spraying of an orchard with a pound of Paris green to a hundred gallons of water; and he advised the use of a powerful garden force pump for its application. I would like to inquire how much water you would use to a pound, and what kind of a force pump. And also, as I raise hay in my orchard, would there not be danger of poisoning the hay, as the grass will have grown to a considerable height at the time the poison should be applied? Some of my trees are very large and I know it would take more than one pailful of the solution to spray one of them.

Mr. AUGUR. The pump we use is a Whitman fountain pump. Perhaps you know what it is. There are two or three pumps very similar. It is a pump where you just put the hose into the barrel and work it and it throws a fine spray. We like to get somewhere near underneath, so to have the spray go up through the tree. As to the amount of poison, I will say, in answer to your question, that when we have mixed it in a barrel we have mixed about eight ounces to a forty gallon cask of water, which would not be very different from what you speak of. But it must be understood that Paris green is not always Paris green. There are three or four brands that are known to the wholesale trade to be strictly pure. If you get one of those brands you get the pure article. There is one brand that is marked by the deceptive name of "genuine" that is not pure and is not claimed in the trade to be pure. There is a brand called the "King's County" and another called the "Long Island," all of which represent different degrees of adulteration, so admitted in the trade. It depends very much on whether we are using a strictly pure article or one that is adulterated. I think that eight ounces of strictly pure Paris green to forty or fifty gallons of water is enough. I know in some instances it has been used so strong as to injure the foliage of the tree. That, of course, we do not want to do; it is not necessary.

Mr. POPE. We sprayed quite a portion of our trees last year by placing a barrel in an express wagon, with a force pump in it, and

driving around under the trees. The solution was mixed according to the recommendation of Professor Cook, a pound of Paris green to 100 gallons of water, as near as we could estimate it without weighing, and the leaves were badly scalded.

MR. AUGUR. That shows that it was too strong. You probably had the strictly pure article.

MR. POPE. The Paris green was too good?

MR. AUGUR. Too much of a good thing. I omitted to answer one of Mr. Atherton's questions, in regard to poisoning his grass. If I had a field of grass just ready to cut, I shouldn't want to use the poison on the trees there. It is better to be on the safe side. I think you ought to apply the poison to the trees a little earlier; not wait until the grass is nearly ready to cut. The rain which we usually have would be sufficient to wash it off if it stands a sufficient length of time.

MR. ATHERTON. There would be the same objection to using the poison if I were to pasture sheep in my orchard.

MR. AUGUR. I should not want to use it in a sheep pasture unless the sheep were kept out for a while.

MR. POPE. Just a word of caution as to the use of Paris green, as two of our men were badly poisoned from inhaling it. I think it is not safe to use it without a wet sponge over the nose. Three of us were using it; one led the horse, one used the pump, and one directed the nozzle. We drove along by the side, and once in a while the air would waft it towards us.

MR. ATHERTON. Professor Cook recommends keeping to the windward of the tree you are spraying.

MR. POPE. You cannot depend on the wind to carry the spray away from you altogether. We were careful to keep to the windward side, but we had two bad cases of poisoning.

AFTERNOON SESSION.

A large audience assembled to listen to the paper and discussion on "Small Fruits and Their Culture" by Hon. P. M. Augur, Pomologist to the Connecticut State Board of Agriculture, who was introduced by President Pope.

SMALL FRUITS AND THEIR CULTURE.

By Hon. P. M. AUGUR.

God in his overflowing goodness has bestowed upon us numerous mercies, not the least of which are beautiful flowers and our excellent summer fruits. These are specially adapted to the season in which they come, and to our needs at that time. The law of adaptation is seen everywhere. Note the fur of the seal and polar bear with walrus fat for the needs of the Esquimaux; the citrus fruits with their delicious acid for the people of the sunny south; and the beautiful, luscious summer fruits for us of the temperate regions, all good in adaptation in their time and place.

The great development of small fruit culture has taken place almost wholly during the recollection of some of us. Those of you who have passed your sixtieth year will hardly remember the strawberry in the old home garden as a cultivated crop; while the same in the village market was an unheard of thing. Now the long trains go thundering along the great railways bearing hundreds of tons of the delicious fruit to the great city markets; not now as a mere matter of luxury, but indeed as a necessary table supply.

Let us look for a few minutes at the intrinsic value of the strawberry. If we were on the verge of starvation probably we should welcome a few barrels of flour more heartily than so many crates of strawberries; and yet in "the good book" it is written "man shall not live by bread alone."

I have in my mind's eye an invalid, sick for some two weeks with that dreaded disease Typhoid; her doctor has told her friends he can do no more and they must be prepared for the worst. A kind neighbor in the fullness of her heart sends in a little dish of beautiful strawberries in the full fragrance of the morning. They are placed upon the bed by the sick girl; their beauty and fragrance awaken a new yearning for life, and now for the first time she desires to take one in her fingers, it finds its way to her mouth with another and another, and in short the turning point is passed, the doctor finds a change for the better and in a few days her merry laugh resounds through her home, and that good neighbor is assured that when life was trembling in the balance she threw in the make weight that turned the scales toward returning health.

The excellent effect of fresh wholesome summer fruit is admitted by all ; it is not merely a luxury, but a factor in the health problem not to be ignored ; the strawberry has also become a commodity in the markets which cannot be omitted ; pecuniarily it reaches up among the millions ; by it the death rate is largely reduced and society made happier and better.

Therefore we need make no apology for consuming a half hour in this meeting in the discussion of this subject.

The question arises, who shall raise small fruits? We answer, all who have a rod of land at all adapted to the purpose, not of course all for market, but a good supply for home use of all the small fruits that are adapted to this soil and climate. I like to see in every young man a laudable ambition to have a home and family of his own with beauties, comforts and luxuries of his own production, and not the least of these are the choice and abundant supplies of small fruits that grace his table from June to September.

The prominent small fruits are the strawberry, cherry, raspberry, currant, gooseberry, blackberry and grape ; these are all adapted to a wide range and in multitudinous variety. As this is a wide range I shall at this time confine myself chiefly to the strawberry, raspberry and blackberry, holding myself ready to answer any questions so far as I am able in regard to the others as they may arise in subsequent discussion.

As the strawberry stands first in the succession and perhaps first in importance it claims our first attention. I well remember a remark of a grand old farmer who made the corn crop a specialty, which was this "when I have my land nicely plowed, manure spread and harrowed in and the land checked off both ways for planting, I consider the crop half raised." I had almost said it about the strawberry, but on reflection can not, for it would not be true. Still the work of preparation is a large part and a most important part of strawberry culture.

The land which has given us the best results is a deep strong loam overlying an impervious hard-pan for sub-soil ; and our mode of operation is this, first removing all stones and stumps from surface on land yielding about fifteen hundred pounds of hay to an acre, this manured, plowed and planted to corn giving an average crop ; second year, potatoes do. Now all surface stones are again removed, land under-drained the ground covered with twenty-five cords per acre of composted or fermented grain-fed horse manure ; it is now plowed

as follows, surface plowed ten inches and every stone within reach removed. Now then we have in first cost of land \$100, and in addition \$200 in drainage and manure.

But with this we have the drainage and aeration three and a half feet deep, with soil broken twenty inches deep and the two years' clean cultivation ridding the land of many weeds and nearly all the white grubs. This land thus made in readiness we plant to the strawberry.

Now what varieties shall we plant? Here we have two requisites to look after, productiveness and quality. If quality alone were to rule, the list would be about like this: Duncan, Black Defiance, Gipsy, Hervy Davis, Gold. While for market according to our own convictions, for early, Crescent; medium Sharpless. Lida; medium to late Belmont, Jersey Queen, and Jewell, and yet some would widely dissent from this list, and while those varieties do wonderfully in some places, they almost fail in others. On the whole there is no better way than to consult experts in your own neighborhood who give about the same soil and culture with yourself.

There is no use in trying to shoot a seventy-four pound ball out of a pistol neither can you raise a Lida and Jewell on drifting sand. For a poor man's berry or a lazy man's try the Crescent fertilized by Wilson or Charles Downing.

With land prepared as we have indicated I would advise planting as follows, adopting this principle, viz: let varieties alternate, believing that cross fertilization is better than close fertilization. With bi-sexual varieties this has not been deemed necessary, and yet it is a fairly debatable question whether the Sharpless or Charles Downing do not do better with rows of Belmont or Cumberland between them than alone.

We do not consider this point actually verified and yet it is strongly probable. With pistillates, of course some good bi-sexual is needed. One plan which has been highly successful is as follows: As we depend largely upon the Jewell, a pistillate, as our market berry, upon first row plant Sharpless; two, three, four, Jewell; five, Belmont; six, seven, eight, Jewell; nine, Sharpless and so on. Thus the three rows of pistillate whatever they be, have a choice between two somewhat diverse bi-sexual kinds; and the laws of sexual affinity have wider range than otherwise you may think; it pays in dollars and cents.

Having settled upon kinds to plant a favorite plan with us is to plant in rows three feet by two feet. Allow each plant to make only two new plants being thus repressed by cutting off all surplus runners. Enormously heavy plants are the result which have many crowns and yield heavily of very large berries. This plan applies to spring planting while August planting should be twenty by twenty or eighteen by twenty-four; runners kept cut. This at twenty by twenty would require 15,642 plants per acre and as we have exceeded one quart per plant on a 1.22 of an acre you can estimate what a yield that would be; 488 bushels per acre, are plants set in August 1st, not potted but layered (potted.) Now you will please understand we do not always plant in this way; as we have constant orders for plants we have been obliged to do in a way that would give many plants as well as much fruit, but we have tested the method sufficiently to judge its merits.

And right here I desire to emphasize the matter of under-drainage as one of special importance where good natural drainage is not found, by first removing superfluous water and thus adding several degrees of heat to the soil; second, by improving the capillary or porous condition of the soil. This point I fully believe is not well appreciated; in order to have nature do her perfect work air must permeate the soil; some of the most important functions of plant life and soil adaptation depend upon air in the soil, while water is the great solvent and very essential, air is no less so. But I fancy some one will ask 'is there not danger by thorough drainage of losing too much water from the soil?' Unquestionably there are periods when long and severe droughts prevail, when irrigation would be a great advantage not only on drained but on undrained land. And yet I have found that land in the best porous condition always withstands drought best. Therefore, were I anticipating a severe drought I would take my chances on the land well drained, trusting to the greater absorbing power at the surface and also in the better capillary absorbing power below, together with the deeper root-growth always found in land well drained and sub-soiled. Again, by underdraining and sub-soiling thus aerating the soil for two feet or more, we render available the plant food, specially of a mineral nature like lime, magnesia, and potash, to so much greater depth, that we add largely to plant resources or soil resources.

When I was a young man I commenced farming on a badly run down farm. A friend looking over the farm with me, said, "well

Phineas, you have got another farm right down underneath here that will be all right when you get hold of it." I didn't feel at the time enthusiastic over that lower farm joke, but there was a good deal of truth in it after all.

Another point which deserves more than a passing notice is the increased earliness of fruits or vegetables on a well drained soil. Our experience leads us to believe that from four days to a week may safely be counted on as the advance ripening of the same variety of strawberry on well drained over undrained land on same soil and exposure. This often means better prices as well as a better yield and a longer season.

Another point for which we ask your special consideration is the need of the best facilities for doing work.

As you are fully aware, the cost of all manufactured goods depends much upon the facility for doing the work. The best quality, for the least manual labor is the desideratum of the mechanic. This also should be our maxim. Hence money judiciously expended in removing all obstructions that would impede rapid culture is capital well invested. Farms and farm buildings should be arranged with this as the prominent idea; so too should fruit fields and packing houses. A stump or boulder, which has been an obstruction for years, had better be removed and thus offer increased facility for speedy work.

Another good practice is the occasional plowing in of some green crop, clover being the best as it adds plant food in a readily available condition beside greatly improving the mechanical condition of the soil. But one of the most important factors in the successful growing of small fruits is the generous and judicious application of manures.

If a manufacturer proposes to turn out a large amount of finished goods, he must have a corresponding amount of raw material. This is self evident; it is no less evident that to produce heavy yields of superior fruit, a generous supply of plant food in its most digestible form must be at hand. Well, the question arises, what? I think the manure of grain-fed horses properly composted and fermented excellent. Manure from the poultry house properly handled and fined down is most valuable. Contents of the privy-vault and earth-closet properly reduced and triturated are excellent. Standard Peruvian guano is always good. There is no way in which fish can be so well applied as to pass through a thorough composting and fer-

mentation; bone and ashes mixed, dampened down and remaining a few weeks covered with sufficient earth to decompose, form an excellent manure. There is no form in which potash can be applied so well as in good, unleached wood ashes. Caustic chemicals if applied at all should be used with extreme caution; an overdose of nitrate of soda may do positive harm.

Special strawberry manure of any reliable firm is useful but more so if applied very early in the season so as to become thoroughly diluted and incorporated with the soil before the active growing and fruiting season. No one rule, or formula, can have general application in applying manures, so much depends upon the special deficiency in any given field. Special manures and commercial fertilizers are valuable to supplement our home manures, but we should not depend wholly upon them. We should on the contrary plan to keep as much farm stock as may be compatible with our circumstances with special reference to the manure product. Josiah Quincy, I think, gave utterance to the statement that a "cow's droppings were worth as much as her milk." That they have great value we fully appreciate. Cemented gutters with plenty of absorbents will enable us to save more wisely these valuable products, specially good for small fruits. A large vat fourteen by twenty feet, by six feet in depth with drains from stables and barn-yards to a connecting reservoir with pump is an arrangement affording the best facilities for using liquid manure in composting and fermenting all coarse material that needs decomposing and nitrifying.

In these days, when the manure problem is one of the hardest problems to solve, we must avail ourselves of nature's forces, which are waiting to be set to work, and use them for all they are worth. As the proper action of yeast upon dough is a great aid and factor in good digestion, so we believe the proper action of ferment germs or microbes upon crude manures is a most salutary work, and should be more generally secured.

As this paper is somewhat fragmentary, I will touch upon a few points that I consider important. First, Do varieties wear out? Yes. How soon? It depends upon treatment. Suppose A and B are neighbors; they both grow the Sharpless strawberry. A selects plants from his best stock that have not fruited, cuts off all blooms, gives good culture on good land, weeds out all mongrel plants; and thus, year after year, intensifies all the good points of the kind. B, on the contrary, takes his plants from old stock that are de-

pleted to exhaustion, allows them to fruit what they will the first season, and soon his stock is run out. Now if B's plants have any value, A's have ten times greater value, at least we would advise buying plants from A, but would not accept them as a gift from B. So varieties may run out quickly under bad management.

We would try strongly to dissuade any one from trying to get a second crop from the same plants, as a small crop of inferior fruit neither brings profit nor reputation; therefore try for a large crop of fine berries, and after the crop is gathered, plow under at once and rotate with a different crop.

Again we urge a suggestion before your organized agricultural and horticultural societies, to wit: in connection with awards, offer if you choose, a first and second premium for the best ten square rods of strawberries and raspberries, size, quality and yield to be considered with a detailed verified statement to be reported.

THE PICKING OF STRAWBERRIES.

This may seem unimportant to many, but the results of a crop depend much upon careful handling. Expert picking requires apt fingers and good judgment. Each berry should be picked at the right time. Unripe berries and over-ripe berries should never be found in your crates. The green hull should never be detached from the berry, and berries should never be massed or squeezed. Berries in this condition put into a cold room at fifty degrees may easily be kept over Sunday and go into market Monday.

A very important point in picking is not to disturb or injure the foliage or green berries. Let your berries go into market in such condition as not to discredit your name which may be prominent on the crate.

MARKETING STRAWBERRIES.

Of course very much of the profit in strawberry growing depends upon having a good near market of sufficient demand to consume the crop speedily as it goes into market. This is specially a crop where overproduction may involve loss as the strawberry is a quickly perishable fruit. Therefore if those in a given locality who have all the requisites for the business supply the demand already, we advise caution about engaging in the business there. If fifty crates per day supply the demands of a given market at a price not less than ten cents per quart, the addition of ten crates more may bring the

price down to six cents per quart so that the addition of the ten crates involves a large actual loss, by breaking the market. Therefore it is always safe to have an overflow market, even if at less figures, to save your local market.

Again it is best to excel in raising berries of extra size, beauty and quality. When a market is glutted the small berries suffer worst. John White and James Brown raise berries for market; White's berries average thirty-five to the quart; Brown's average one hundred to the quart; White has a larger yield and gets twelve cents per quart average. Brown has a less yield and gets an average of seven cents per quart. White has a quick demand, Brown's go slow. White comes home from market looking happy, Brown brings home a long face. Now whose place will you fill, that of White or of Brown? I leave that for you to answer. But remember Daniel Webster's advice to a young lawyer who asked him if there was any more room in the profession, "Yes, plenty of room higher up."

MULCHING.

This is a practice I need not explain to you; but I assure you one of great importance. Where your land is covered with snow till April, it is of less need than with us in Connecticut, where we have more open weather in winter; and yet the plants often suffer most during the frosty winds that prevail in spring after snow is gone.

When the ground ceases to freeze nights you can remove the mulch (two tons of coarse hay per acre) and find last year's foliage looking fresh and green; here is a strong point in your favor; when this is done the ground should have one perfect shallow hoeing and weeding, then remain free till the green berries commence to change color; at this time put back enough mulch to keep the berries perfectly clean. Leave it there till the crop is gathered, then turn mulch and plants right under and seed to grass or any other crop.

FARMERS' FRUIT GARDENS.

On my way to New Orleans Exposition in passing through Alabama, as we saw negro quarters frequently and many dusky faces peering at us, I said to the conductor, what do these people live on? "*Hog and hoe cake*," said he, "year in and year out." And so it is too often in outlying farm districts; the delicacies of life are too few and infrequent.

What a world of comfort this would be if we only took God's gifts as freely as they are offered and here comes in the fruit garden. Farmers, let your tables overflow with luxuries of your own production. Start the boys in this work. Yes, the girls too. The young people will hold closer to the farm with such privileges than without. Health, comfort and good cheer will make you wiser, happier and better. By all means, then, improve to the utmost the home fruit garden.

The raspberry and blackberry; both these fruits are valuable. The land should be good and the culture good. The raspberry should stand in straight rows both ways, six feet by six feet. When the canes reach four feet, nip out the tips with thumb and finger; as the laterals extend eighteen inches, nip a clip again; cultivate both ways, tie to stakes, and you have a foundation for a large crop.

Varieties: Souhegan, Mammoth Cluster, Nemaha and Hilborn.

Blackberries, plant 8 feet by 6 feet, and treat much the same.

Varieties: Snyder, Taylor, Erie.

In closing let us remember in general that the culture of a highly manured plat costs no more than the same without manure. Also that clean culture can be secured as well under high fertilization as without.

Therefore let your work be complete, lacking nothing, and you may adopt the motto: "*Post praelia, premia.*" (After the battle, the reward).

DISCUSSION.

MR. POPE. I would like to ask Mr. Augur how the Shaffer succeeds with him, and whether he would recommend it for general cultivation.

MR. AUGUR. It succeeds admirably with us. It is an immensely strong grower and stands perfectly well with us. I do not know whether it would be as hardy with you, but, if so, it is a most desirable variety. Under high culture you get a great many berries that will measure three quarters of an inch in diameter; and while the color is not quite perfect, yet the good size and the good canning quality of the fruit make it a most desirable variety to plant. Our canes sometimes grow as large as a walking stick and very strong. If the plants are set four feet apart in rich ground they will branch

out and bear an immense crop. The full name is "Shaffer's Colossal" but it is commonly called "the Shaffer."

Question. Will you name the varieties of the red raspberries that you would recommend?

Mr. AUGUR. I hardly dare do it, for fear I may lead you astray; your climate is so different from ours that the varieties that are hardy with us might fail with you. If any one has had experience here he would probably be a safer guide than I. If I were to name some for you, among the first I should put the Cuthbert, which is perfectly hardy with us, a good producer and the fruit is a good market berry. Take it all in all, no variety that we have had has been more generally approved than the Cuthbert.

Mr. BRIGGS. I would like to ask Mr. Augur if he considers the Sharpless strawberry a good shipping berry.

Mr. AUGUR. Yes, for short distances. I don't know as I ought to say yes, because shipping may mean five hundred miles. There is one fault about the Sharpless; it doesn't color all over at once; they have green tips, and sometimes, if we wait long enough for them to get a good full color they get a little over-ripe. If we pick them with the green tip it makes them look badly when they reach the market. If you wait until they are over-ripe before you pick them they are not good berries to ship.

Mr. BRIGGS. At the present time, near our small cities and larger villages, we are increasing the production of strawberries, and I noticed last season that the Sharpless were sought for at remunerative prices.

Mr. AUGUR. I should judge that among the larger berries that have been widely distributed and tested over the country, probably the Sharpless would take the lead. You allude to the Wilson. The Wilson strawberry is not understood. Like the Concord grape it colors before it is ripe. If picked at that time it is a sour berry and wants a great deal of sugar. But if you let the Wilson get thoroughly ripe it is of very good quality; but in that case it loses its shipping quality. The shipping quality of the Wilson is owing to the fact that it colors over before it is really ripe.

Mr. SWEETSER. I would like to ask with reference to the Jessie strawberry. We have a circular recommending it, and from what I have seen I have got an opinion that it is going to be a leading berry in some sections; I don't know how it will be here. The Belmont I

heard spoken of last year. I see that Henderson, in his "Gardening for Profit" speaks of the Jewell as being a wonderful berry.

MR. AUGUR. With regard to the Jessie all I can say is that we think well of it. It comes from Wisconsin. We have not fruited it really enough to determine its value, but we have been favorably impressed with it, as we have with the Belmont. I feel a little delicacy in saying anything about the Jewell, because it would be like an interested witness testifying on the stand in his own behalf.

SEC. GILBERT. I trust you will smother all feelings of that kind, and we will forgive you as long as you keep truth on your side.

MR. AUGUR. I am glad your secretary has given me that caution.

MR. POPE. When he started from home his wife and son told him to be a little careful about what he said in regard to the Jewell, for fear he might appear to be blowing his own horn.

MR. AUGUR. As a matter of caution you must consider whom it comes from and give no more weight to it than it deserves. I am going to tell the truth, as brother Gilbert has suggested, so far as I can, for two or three reasons. The old maxim is that honesty is the best policy ; and, another thing, I should feel utterly discouraged with the task before me of cheating a crowd like this if I felt disposed to. I will say this, that on our grounds it has proved a great success, and, on the other hand—for I must tell both sides of the story—it has gone into some hands where it has been condemned. Mr. Green, of "Green's Fruit Grower" has condemned it pretty strongly, and he paid us in doing it a compliment, and perhaps thought that would shut our mouth. He said he believed that the man who supplied it was an honest man and didn't intend to wrong anybody, but nevertheless the variety had failed to satisfy the expectations of many who had purchased it. Well, I will not dispute it ; it has disappointed some. I want to tell you a little about its peculiarities. It is especially a variety that does better in hill culture and on a deep, strong soil. If you have a sandy soil that is not very rich I would not advise you by any means to try the Jewell, because I should fear that you might be disappointed. At the same time we have had some excellent testimonials from people who have grown it on that kind of land. It has one fault if it be a fault ; I don't know as it is ; it is not a fault for us, and President Lyon of Michigan says it is not a fault for him ; but many people regard it as a fault. It does not make plants rapidly. Under favorable circumstances it makes exceedingly heavy plants, but it does not make a great many, and I know many of our patrons complain about that.

They expected they were going to get a good many thousand plants and make considerable money out of it, and it does not meet their expectations in that direction. And just let me make a suggestion here. I would not advise anybody to buy largely of the Jewell or any other new variety until they have tried it in a small way. A dozen plants well taken care of will tell the story and tell it pretty soon. Whenever you have any variety of strawberry that multiplies slowly, and you regard it as a fault, suppose you have a dozen plants, you take your plants from those plants which make the greatest number of runners, use those for stock and let the others go to fruit, and keep repeating that year after year, and you will find that the capacity for multiplication will increase. We are doing that every year; for our stock plants we select from the best and from those which are the most prolific in runners. We have no fear about productiveness.

Just let me say here, as perhaps there have been various reports about it, that a few years ago we had a field day on our grounds, and on a piece of one twenty-second of an acre of strawberries that we set about the first of August, the number of quarts of berries exceeded the number of the plants. That is, we had more than one quart to a plant, some plants yielding two quarts and a little over. It takes fifteen thousand and some hundreds of plants to the acre, where they are set twenty inches apart each way. At a quart to a plant, if you can secure that, you have over 450 bushels to the acre. I do not say that you can secure that; it would be perhaps the exception; but I simply mention it to show that if you can reach the maximum you will obtain a large crop. There is one objection to the method of hill culture, and it is this: That when the grubs are numerous on a piece they dig and reduce your stock so rapidly as to be very discouraging, and we do not like to adopt that plan unless we are pretty sure of being free from the grub. And even then we have a bed alongside, where we have a reserve of plants, so that in case we lose one occasionally we supply its place at once, of course finding the grub and destroying him. It is always seen when we plant on new land, but when we plant on land that has been cultivated two years, we feel pretty confident of not being troubled very much with the grub.

Question. What do you think of fall planting as compared with spring planting of strawberries?

Mr. AUGUR. It depends very much on circumstances. On land that is suitable to fall planting it does very well. I should say summer planting would be better. If you plant in August the plant can so far develop and crowns form to such an extent that you get a heavy yield the next year. If you plant later than the first of September you will hardly do that. If I planted in October I should do with those plants the next year just as I would with spring set plants, cut off all the blows; because you would not in any case get any good crop, and all you would gain would be simply by doing work in the fall which otherwise would have to be done in the spring. If your ground is heavy, if it is cold and wet, I would hardly advise planting in October. If you can get a piece of land ready to plant anywhere from the middle of July to the first of August, plant in hills, keep the runners all cut, and then you may calculate on a heavy crop the next year.

Question. Would we also have a heavy crop the following year?

Mr. AUGUR. We do not try that; we do not like to use a spent cartridge, if I may use that expression. There is a great deal in that too. I know a very excellent man in our place, a minister; and he preaches well; he produces sermons more successfully than strawberries; but he advocated in the paper the planting of strawberries in the spring and raising a row of beans between. If beans bring a better price than strawberries I would plant the whole piece with beans, but if they do not I would not plant them at all. I believe a little with the apostle, "this one thing I do." I believe in making a specialty and then attaining as high results as possible. And so I do not believe in taking a second crop from the same plants. You can get a moderate crop; but in the mean time clover and weeds have come in, which necessitate a good deal of hard work; and we have always thought better to turn the plants right over and take a new piece, and then we get large berries. You may be sure it is worth something to put crates of berries into the market so choice that the dealer will put your name on them on a large placard, say, for instance, "White's berries," and have people going from one store to another inquiring for them. If you can get a reputation of that sort it is worth something. And if you raise a second crop on the same ground they wouldn't be apt to put your name on the berries.

Question. Is the Jewell a good shipping berry?

Mr. AUGUR. I am glad you asked that question. It is like the Wilson in one particular; it colors over at once usually, and when

it first colors it is of a scarlet color ; and our experience is that if we pick it at that stage we can ship it almost anywhere. If it remains on a day or two longer it becomes crimson. In that stage it will go well to a near market. But if you let it remain on a little longer, until it becomes dead ripe, it becomes a very dark crimson, and then I should not want to ship it very far or have people keep it over night. I know one of our patrons made the mistake of letting his berries get too ripe. And, by the way, I think all strawberry growers will agree that this is wise : keep right up with the crop. If you let berries go until Monday or Tuesday that ought to be picked Friday or Saturday, you will have trouble with them. A great deal depends upon that. Pick them often enough so that they shall not be in the last stages of ripening. A large berry, when it gets over ripe is very apt to go down. We sell by wholesale entirely, and we have always said to our customers, "if you find it necessary at any time to charge back any berries that we send in, do so ;" and last year and the year before, when we came to settle up accounts, we asked the men if there was anything to charge back and they said "nothing." We have taken the precaution to keep up with our crop in picking, even if we have to send some into the market when they do not bring quite as much. We do not like to leave berries Friday and Saturday to go over till Monday if they want picking then ; and we have always picked on Saturday and put into a cold room, where the temperature is about fifty, and then they go in Monday morning in good condition. I know last season when a load of our berries were going to market in pretty good season one Monday morning, some of our good people asked each other, "when do you suppose those berries were picked?" but they were picked Saturday.

Mr. POPE. While you are up I would ask you to say a few words about the currants.

Mr. AUGUR. I think the currant is a very useful crop. It is a productive crop. There is more sugar in the currant than in the strawberry, though it is hard to believe it. We have about an acre and a quarter of currants and they do very well. It takes a smaller quantity of currants to satisfy the market, almost anywhere, than of strawberries. We can send in five crates of strawberries where we can one of currants. If anyone is inclined to plant white currants, as sometimes they are recommended very highly, I would say don't do it. We had a very large crop of white currants last year, and

if the crop, generally, had not been short we should have had difficulty in getting rid of them. You can sell five quarts of red currants where you can one of white, and we have to sacrifice on our white currants. It is the color that people want to buy; if they buy for jelly they want a brilliant jelly. We set about four feet apart one way and three the other. Growing in a pear orchard they do nicely, and so do the pears. For the currant worm, I would recommend hellebore in solution. Syringe or sprinkle the bushes early. Do not wait until the worms have half eaten off the foliage. It is very easy to keep them under control. If you take it in the first of the season and are right down thorough, going over the entire lot of bushes, and follow it up, you will find that it will be almost needless to do it the next year. Sometimes we pass over a year or two after a very thorough war against them, without seeing much of them. But, as a matter of precaution, we calculate to go over the bushes at least twice during the season. A great many plants will not have any on them; here and there there will be a bush that needs syringing pretty thoroughly. It is a good crop to raise to a certain extent, if you don't get the market overstocked.

Question. What is the best variety of currants.

Mr. AUGUR. Before having Fay's Prolific we had decided that the La Versaillaise was the best currant. There is not a great difference between that and the Cherry. We are inclined to put Fay's Prolific a little ahead. The Red Dutch is very productive, but the berry is smaller. The Victoria is rather too late. That is a point that any one planting for the market must look at. Late in the season, whether the currants are over-ripe or not, people are afraid of it. When currants get over-ripe they do not make jelly well and people are afraid of that.

Question. How much hellebore should be used to a gallon of water; and should the water be cold or hot?

Mr. AUGUR. A table-spoonful is sufficient. We do not heat the water. We mix it in thoroughly a little beforehand.

Mr. ATHERTON. Mr. Augur was particular to emphasize the matter of rotation in the planting of strawberries. I thought he was rather extreme. I know that that view, of one year being sufficient to run a strawberry plant, is carried out by those who cultivate the strawberry upon a large scale; but is that advisable always? It would seem as though that extreme doctrine might discourage some who wish to cultivate, not largely, but in a small way. In such

a case I would ask Mr. Augur if he would not advise running for two or three years, and could not some profit be got out of it in that way?

Mr. AUGUR. Well, that is a thing to be considered. In a private garden sometimes it may be desirable to let a strawberry bed go over the second year. Brother Atherton speaks of people being discouraged by the idea that only one crop can be taken off from a set of plants. But there is another view of it. I don't know of anything that encourages anybody more than a heavy crop, and if we find that we can get a heavier crop by shifting onto another piece of the garden and putting in something else where the strawberries were it seems to me that is encouraging. I may be extreme in my views, but one of the oldest strawberry growers in our State said to me, "people lose a great deal by undertaking to run a strawberry bed the second or third year," and I have come to believe it. At the same time I know that people do sometimes get a very fair crop the second year by a good deal of care. We have tried it, but we have found that it does not pay. On a piece of land that is very free from weeds and very easy of cultivation it might do.

Mr. ATHERTON. One thing more I would like to have you make a little plainer, and that is as to the application of manure the third year. The first year you plant corn with a certain amount of dressing; the second year potatoes with a certain amount of dressing, as a preparation of the soil for a strawberry bed. Then you plow the sub-soil and you apply twenty-five cords to the acre. Now I wish to know whether you would advocate plowing that way down deep into the sub-soil? Do you apply it before plowing or after?

Mr. AUGUR. We have applied before. In planting corn we always apply the manure to the surface and run the cultivator freely and think that is as profitable a way as any. But in the strawberry field we like to get a good deep soil and we run the sub-soil plow right following the surface plow, not turning the red or yellow dirt up to the surface, but simply loosening the soil.

EVENING.

The last session was largely attended by the public and much enjoyed. Secretary Gilbert presided. Mr. L. H. Blossom of Turner read a paper on

FRUITS FOR HOME USE.

By L. H. BLOSSOM.

When I was called upon to write a paper on the above named subject, I suppose it would be expected to be both practical and useful. And I shall attempt to make it so to the best of my ability. Whether I succeed or not remains to be seen.

If, in my remarks I refer you to some of my own personal experiences in the culture of "small fruits," it will be only that I may make myself better understood in this way than in any other. Prior to this meeting, this subject has received very little attention from the hands of our pomological society. I think not near the attention that this important branch of horticulture should receive from the hands of our agricultural friends.

When we look around us and see how few of our farmers are supplied with these health-giving fruits found in a small fruit garden, it is, most certainly, time that something was said to interest the farmers of this State in this direction.

You go into our city markets in the time of small fruits, and you find our markets, flooded with the plum, grape, cherry, strawberry, raspberry and blackberry each in their season, are furnished by the small fruit market gardener, thus keeping our city cousins far better supplied than we whose table *should never* be without these luxuries.

You go into the country where it should be found in all its freshness and beauty, you note the change, not one in ten; no, I will put it stronger than that, not one in fifty have got a good, first class, well regulated "small fruit" garden for home use.

Now I write this from my own personal experiences and observations, not from any visionary point of observation. I don't want you to think that we have no "small fruits" up in my town for we have, and lots of them too, but while with one you find the plum, cherry and grape in almost the forty-nine other places you will find the strawberry, raspberry and blackberry a minus quantity. In such cases the strawberry bed is the mowing fields, from which the tired

house wife will try to cull from beneath the laughing butter cup, the nodding daisy, or the crinkled brake enough of those poor little insignificant wild strawberries to set on the table for her liege lord's supper. Or in raspberry or blackberry time you must hie to the back lot or the cut-down and stumble over rocks and stumps and climb through bush and bramble in your hurry-scurry to get back by tea time. Such I believe to be the present condition of things on most of the farms without the "small fruit" garden.

If on the other hand they would devote a little more time and a little more space on their farms for these best of health giving fruits and eat less of pork and beef, I believe the doctor would have to be called to visit the sick far less than now.

But some one said, "I can't afford the time to set out and tend a 'small fruit' garden." Well, let us see about that, first, how many plum trees shall we set and what varieties are the best? In reply I would say set two Lombard, two Imperial Gage, one Bradshaw, one Washington, enough for home use and some to give to your indolent neighbor. Six good cherry trees would help fill up the list. In grapes I would set the Brighton, the Warden, the Delaware and Concord; each in their time would furnish an abundant supply of that most excellent fruit. Next let us look to the strawberry bed. Of this delicious fruit I shall speak more fully. This is the most difficult of all the small fruits to raise, yet the best if it is rightly managed. For location I would select a good, strong, moist soil, well drained and enriched. I would set my strawberry bed on land that had been used for some hoed crop the year previous, bearing in mind that it must be kept free from weeds, and the next spring as early as possible I would set out the strawberry plants.

Now, for a list of strawberries. As far as my experience goes, I would select from the following list: Wilson's, Albany, Sharpless and Crescents, perhaps it would be better to substitute the Manchester in the place of the Sharpless for this reason, the berries are equally as large as the Sharpless. the Manchester grows on very strong stalks not very long, in consequence of which the berries are held up from the ground. While with the Sharpless they grow on long, weak stalks and are more apt to drop in the dirt and become unfit for table use.

Of course these varieties will vary according to soil and location. My bed is on a good strong muck soil well drained, it is the natural home of the strawberry, and well cared for a small patch will furnish an abundance of this luscious fruit for the home table. Perhaps just

a word in regard to my form of a strawberry bed would not be out of place at this time. I would plant two rows two feet apart, training the rows together or towards each other, then a walk of four feet, then two rows more in the same way as the first two and so on until you get all set that is wanted. This method gives the picker a chance to pick from the outside and inside and not get onto the vines and injure the berries when picking. After picking the second year I would train the runners into the path after giving the ground a liberal coat of dressing and in this way start a new bed; when well rooted dig up the old bed and then you have a new one started for next year. In this way you will always have plenty of strawberries with which to furnish your table.

For raspberries I would plant Turner and Cuthbert for reds, and for black caps, I would plant Tyler for early, Gregg for late. Now, if you set fifty plants of each, in two years you will have all the raspberries you can use in your family.

In regard to care and culture, the reds should be planted three by six feet apart, and the first year after planting you should allow no fruit to grow, but cut the plants back to within about a foot of the ground, the second summer and after, pinch off the end of the young shoots when about two feet high, but don't pinch but once in a season, the branches also should be kept pinched back to about a foot in length.

Don't allow more than eight or ten canes to grow in a hill. Every fall cut out the old canes. Under this treatment you will find no trouble in raising all the raspberries you want for your own needs.

With the black caps I have not had as good success as with the reds and I lay the fault to my not having pruned them enough. The black caps are propagated by means of the tops bending over and coming in contact with the ground when they take root. After becoming well rooted the stalk is cut off about a foot from the ground, thus you have new plants to set out.

But in case you don't want any new plants you must prune the same as in the reds to get the best results.

In the cultivation of the blackberry treat the same as the raspberries as far as pruning and cultivation are concerned, and your vines will afford you an abundance of fruit. For varieties, I would plant the Snyder and Agawam as they are all the varieties I have tested.

Now in conclusion, let me say just a word to you, it has not been my aim to paint you a picture beyond the reach of any of you. I have tried to make my paper so plain that every boy and girl here

to-night will know just how to go to work to make a small fruit garden.

And now boys and girls, when you go home to-night just you tell your parents you want some strawberries, raspberries and blackberries to set next spring, and a good chance to set them and plenty of time to tend and care for them, and don't you give them any peace till you get just what you want. Hoping and trusting that some where in these few hastily written words, I have said something that has been of interest to you, I will close.

DISCUSSION.

Sec. GILBERT. We still have with us our friend from Connecticut, who has not yet exhausted his store of information on the subject. And while, up to this time, we have been dictating to him something of what to say, we shall now be pleased to have him come forward and say some things that he thinks he ought to say to us and give us some information on those points on which he thinks we need it.

Mr. AUGUR. Mr. President, and Ladies and Gentlemen. I can not help thinking that the people of Maine ought to have this evening to themselves rather than to listen to me. However, as I am not very often here and I have been invited to occupy a few minutes, I will do so. With your permission I think I will say a few words on a matter that was alluded to and which I in part omitted this afternoon, namely, the matter of cross fertilization and hybridization.

The urgent need of new varieties of fruit combining the best qualities of our present successful varieties, and adding thereto some very desirable new points, is my excuse for offering a few thoughts thereon. For illustration, the Baldwin apple is one of the best shippers we have. It is also a very good apple for general use. Now what would we like to add to it to make it more valuable? First, a stronger constitution as a tree. Second, a disposition to bear annually and more evenly, instead of giving breaking crops one year, with barrenness the next. Third, an added richness in quality with a little more brilliancy of color. This is simply an illustration to show what is needed in all species of fruits. We have not yet attained to perfection in any. Now we readily understand that in order to gain a desired point in any direction we must make a direct move in that direction. If we could apply the subtle forces of nature as accurately as the expert billiard player does to his balls, the desired result would be easy to gain.

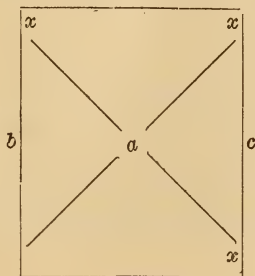
This we must admit is not the case ; there are unseen and opposing forces ; bad heredity, and the tendency to reversion confront us at every point. To illustrate : We have on our grounds a seedling crab we call the Middlesex ; one of a lot of seedlings from Yellow Siberian ; but instead of taking the color of its parent, yellow, it diverged so widely as to be a dark red ; this result may have been through natural cross impregnation ; or a reversion toward more remote ancestry.

So in every attempt we make, no matter how carefully, we are liable to reach a result differing from our aim, simply through the laws of atavism, and reversion.

But we should not allow such a possibility discourage us, for we find that the momentum of high culture in connection with cross-impregnation, gives an impetus along the new line of work, promising grand results.

Again in aiming at high results I would advise when obtainable and as far as lies in the desired line, to use new varieties believing them to be more impressable than old ones. For instance we believe that varieties like the Jewell and Belmont crossed together and subjected to most favoring circumstances more likely to make an advance than old varieties, like the Hovey and Wilson, for a similar reason, to use an analogy, that when a foreign family immigrate the young members always get our language first, or that a puppy can be trained to do what an old dog cannot.

In raising new seedling strawberries we should take for the mother-plant a pistillate, having as they do a higher development of the female organs, place the plant under a small frame and as a pollenizer use the variety coming nearest to your ideas of a perfect berry. Thus, suppose you take the Crescent, the Jewell or the Gipsy, choose an ideal plant and use the Ontario, Jessie or Belmont as pollenizers. In this way let a represent the female and x the male plants.



When the blooming season occurs put a sash over the frames to prevent the access of foreign pollen and as soon as impregnation is complete remove the sash to afford air and water. It will be observed that if *a* is strictly pistillate, cross impregnation will be inevitable. Now, secure the highest development of the berries and choose the most perfect in size, form, color and quality for seed.

The plants from such seed will be a most interesting study. They may be expected to show wide and wonderful variations in habit of plant, flower and fruit with a possibility of valuable results. In case two bi-sexual varieties are used the mother plant *a* should, on the first opening of the flowers, have all the stamens removed with fine scissors to escape self-impregnation.

The same remark holds true regarding other fruits also where cross fertilizations are desired. And with grapes and tree fruits, a small sack of fine muslin should protect the flowers which have been castrated and the desired pollen from the chosen variety should be applied to the stigma of those flowers using a soft camel's-hair-brush or something of the kind.

This field is a wide and inviting one giving an opportunity of working out beneficent results. To those who are beginners in this work let me say, that a large amount of labor may be saved by an early rejection of worthless plants, vines or trees, where the foliage or wood show a reversion toward the wild type, the sooner they are uprooted the better.

Again, in judging of the merits of new fruits, what we want is not mediocrity but superiority; and as a rule no new fruit should be generally introduced unless it has points of superiority over varieties we already have; but we have not attained perfection in any one fruit as yet so the field is fairly open to any intelligent and judicious endeavor.

Let no one be discouraged at repeated failures, trial after trial may result in nothing of special value; but when a variety of real and decided value is obtained it is easy to multiply it indefinitely, and bless the world with it.

Therefore as a mark of good will, and as a pleasant recreation as well, we most cordially invite attention to this matter.

Remember the Concord grape, Bartlett pear, Baldwin apple and all other valuable fruits were new seedlings at first; other seedlings even better, may reasonably be expected as the result of intelligent, persevering effort.

Mr. POPE. The first question which I have been asked to propound for discussion is, what is the coming apple for shipment from Maine?

Mr. ATHERTON. I should say that in about five hundred and fifty years it might possibly be the Ben Davis.

Mr. TRUE. I have some thirty-five young trees of the Ben Davis. They bore some this year and the apples were some of the handsomest that I raised. The trees appear to be very hardy and to grow very rapidly. It seems to me that if we can grow a handsome apple with the keeping qualities of the Ben Davis we have got an apple that will bring us some money and that is what we are looking after.

Sec. GILBERT. The chair raises the question whether the extreme late keeping quality of fruit carries with it as much of money value as it did years ago; whether the demand for apples that keep extremely late, well down into the summer, is not passing away under the new order of things, and whether we might not conclude, therefore, that the quality of keeping extremely late would not give a great money value to the fruit.

Mr. MERRILL. I shipped some Ben Davis apples a year ago with my last shipment, and they arrived in much better condition than any other variety. I shipped as late as the fifth of May from Portland to Liverpool. I shipped thirty-eight barrels of the Ben Davis of my own raising on the twenty-ninth of April, and I shipped some on the week following. I saw them after they arrived and they looked just as well as when they came out of my cellar; and they sold better than any other variety at that time in that market. They do not claim that the Ben Davis there is as desirable fruit as some others, but they will pay a better price for fruit which is sound, than for that which is partly decayed. Late in the season the Baldwin matures very fast in transit, while the Ben Davis makes no perceptible change. The Russet looks very well after it arrives in Liverpool, but it is not the apple that it is when it leaves here, at that time of year, in April or May. As to the future of the Ben Davis we are unable to say, but we judge as to the profit of any business in the future from the past. We well know that the Ben Davis has been the best paying apple that we have raised when we have kept them late.

I know most everybody says the Ben Davis is worthless, but I notice our local trade is very good for that variety in May and June.

I am inclined to think the Ben Davis is about as good property as you can have for apples at the present time, either for export or for local trade.

Question. Another question was offered and stated by the chair as follows: The sum of the question is, how the Baldwin tree should be propagated, the question arising from the fact that the fruit growers generally concede that the Baldwin is not fully successful as grown in the nursery.

Mr. ATHERTON. Last summer, I called at Mr. George Bowman's place, of the firm of Bowman Brothers, in Sidney. He very kindly took me through his different orchards and nurseries. He had a number of rows of ingrafted Baldwin trees and they were very fine trees indeed. Some years before, I said, "Mr. Bowman, they say they cannot successfully raise Baldwin trees here in Maine," and I urged him to test the matter. And he put out in one year, I know, a thousand trees, and I think he has now about ten thousand, and I don't know but more, of young Baldwin trees, and he is ingrafting them every year, and he has a good many now, in his nursery of Baldwins ingrafted.

Mr. GILBERT. Mr. Bowman told me this winter while looking over his trees that he was not propagating Baldwins in the nursery.

Mr. BLOSSOM. This summer I had five barrels of Wealthies. All the fault I can find with the Wealthy is that it drops quite badly with me. That may not prove to be the case with others. It has borne well with me for the past two years and the apple is fine in every respect.

Sec. GILBERT. I think the falling off is a characteristic that holds good wherever it has been fruited in the State.

Mr. AUGUR. I think it should be borne in mind that the Wealthy is not a late keeping apple. In southern New England I think it is but little more than a fall apple or early winter, hardly keeping as long as the Hubbardston.

Sec. GILBERT. Allow me to add, in this connection, having had something of an opportunity for observation, and always keeping the matter in mind, that I think we can lay it down as a fact that has been proved, that the Wealthy in season is but very little, if any, later than the Fameuse, being here a November apple. Of course grown in the northern part of the State it becomes a winter apple.

I found them last fall all the way to New Sweden, these keeping well through the winter and promising to furnish to them a winter apple of high quality.

MR. POPE. What encouragement have we for careful sorting of our fruit when all our buyers, in packing the fruit for the English market, pack the best ones on the top and bottom and throw almost anything in between?

MR. PRINCE. I have been told that they pour the apples out into a large tray, a barrel or two, for a sample, and then sell from that sample. I don't know how that may be, but I have thought that if I had apples enough to make it an object, I would put up my apples and put my name in the barrels, and on the end I believe I should make money out of it. Put them up as they ought to be, and not as mine were this year—putting in about a peck of number ones on the bottom and then number twos, and marking them number twos. Of course when they open them they will think they have got a very fine barrel of number twos. I do not believe in that way of putting up apples.

MR. POPE. I spoke to our buyer about that, and I said, "What is the use? As soon as they are turned out in the tray they show." He said, "Their first impression is the strongest; they see the barrel of apples looks very nice and they will pay a good price, even though they look badly down along. But if they open the barrel and it looks badly on top, that barrel is condemned any way." And I asked the same question in Boston, and they said, "You ship good hard apples, not very large, and don't be too particular about sorting; you will get more money out of it." In shipping I sent number ones and twos on the same vessel, sold at the same time, and I got more money out of the number twos than the number ones.

MR. PRINCE. I guess it is time for me to take the train. [Laughter.]

MR. BLOSSOM. Mr. Merrill told me how to pack them, "I want you to pack them right straight down through all just alike." Now what did he go over to England for if it wasn't to find out how he wanted these apples packed?

MR. MERRILL. I should be glad to explain the process of selling apples there. I think the buying of apples and exporting is as legitimate a business as we have in the State of Maine and many of the apple growers appreciate it. Mr. Pope's apples go to Liver

pool and so do Mr. Princes'. Apples are sold in a good square legitimate way there; a poor lot put on the market is sold at a low price. They are able to see them. There is no sales-room that I ever saw in this country that is better fitted up to show goods than they have in Liverpool to show their apples. Their sales come on Mondays, Wednesdays and Fridays. The sales-room will probably hold three or four hundred people and is so constructed that one person can see the apples as well as another. The seats rise towards the rear like those in an opera house, only more rapidly. Suppose a man has a thousand barrels of apples on the dock, of ten different brands. If he chooses to sell them at ten different sales he will bring up two barrels of each brand to this building and they are set in an elevator and they are drawn up through the floor. One barrel is dumped out into a large basket where every one is able to see about every apple, and the other barrel sits on the elevator as it is headed up, to show the appearance of it on the market. There are five brokers in Liverpool and only five who do this business. There is no competition there; those five brokers are together; they stand up on a stage about ten feet above the floor, and each one has a clerk, one on the right and one on the left; and when the sale commences in the morning at 8 o'clock (which is 3 o'clock with us) each auctioneer is entitled to forty minutes; he commences his sale, and when the forty minutes are up he sits down and the next man takes the stand; and so they go through with the five, and then commence with number one again. Sometimes the sale continues all day. What are unsold are left until the next sale day, two days following. With the experience I have had in shipping apples, my opinion is that the man that packs his apples best gets the best prices.

The discussion closed the exercises of the joint winter meeting, which proved to be one of the most profitable meetings ever held under the auspices of the society.

THE SECRETARY'S PORTFOLIO,

CONTAINING

Original and Selected Scraps, Composed by Fruit
Growers and others, and Gathered from
Various Sources.

The Secretary's Portfolio.

The past year a large number of valuable papers and articles have been written by prominent horticulturists and others, bearing more or less directly upon the work of this Society. Thinking many of our Maine readers may not see them in other form, we have gathered the items for the following pages from various sources. We trust they may afford the readers as much pleasure as their preparation has given the Secretary.

THOUGHTS AND SUGGESTIONS ON FRUIT CULTURE IN
MAINE.

By D. J. BRIGGS, South Turner.

First, is it profitable to cultivate fruit? Yes, it promotes the health of man or beasts to partake of fruit in more or less quantities during the entire year. Apples take the most prominent part in fruit growing in Maine although almost all farmers can propagate in this State other species of fruit, such as pears, plums, grapes, cherries, strawberries, raspberries, blackberries, &c. If any one has more than is needed for home use it will most always sell in our large towns and villages for a remunerative price. Apples are quite extensively exported at the present time and it is considered a good paying industry both for the grower and the shipper. I believe it pays as well or better than any other farming; and right here, would it not be well for this society to select a committee or otherwise to present a petition before our agricultural committee at the next legislature assembling for an increase of stipend; say (\$500) five hundred dollars in addition to what we now receive? That would make one thousand dollars; that is a small outlay for the interest of fruit culture in proportion to legislative appropriations in many other States. Fruit farming is almost second in production financially in comparison with other farm products of this State. Sec. Gilbert's report on State stipend to the agricultural societies gives the three States, and thirty-six local societies a little short of eight thousand dollars. If equally divided it would amount to about two hundred dollars. The thirty-six local societies as reported receive nearly one hundred and fifty dollars each, if equally divided. The fruit growers of Maine should receive encouragement in proportion to other industries of the country.

I think it would be advantageous for the fruit growers of Maine to hold more than one meeting each year for comparing notes and the discussion of subjects pertaining to the best interests of fruit growing in Maine. We should post ourselves as far as possible in regard to the kinds of soil that different varieties of fruit are to be planted in. When we learn that, it will not be so hard to decide what varieties to order. Orchardists have planted in former years more varieties, or in part, than was for their interest financially, although it has given them a lesson of experience, so in the future they may select a few of the best thriving varieties in their particular locality.

ASA GRAY.

During the past year the death of no one has been more universally regretted than that of Prof. Asa Gray, the renowned botanist of Harvard College. Not alone are botanists indebted to him, but fruit growers and florists will always owe him a debt of gratitude, for the excellent works he has written and the valuable knowledge they contain. The following paragraphs are from *The School World*, and it is a pleasure to publish them as a tribute to his memory.

Dr. Asa Gray was of Scotch-Irish descent. He was born in Paris, Oneida County, N. Y., Nov. 10, 1810. His father was by occupation a tanner, and operated a tannery in this New York town. As a boy, Asa Gray is said to have been bright and lively, a great reader, and able to gratify his tastes in that line from the volumes of a circulating library, for which he was messenger. He read the Waverly Novels, Byron and Shakespeare, and these had very much to do with the development of the high literary taste shown by him later in life. At the age of eleven years, he entered an academy, where he spent several years till he began the study of medicine. When twenty-one years of age, he graduated from the Fairfield Medical College.

By chance when a boy, he read an article on botany in an encyclopedia, and his first ideas of botany seemed to have come from the reading of this. He was for a time under the instruction of Dr. John Torrey, from whom he received most valuable lessons in botany as well as an excellent training for all the phases of life. So great was his early love for the study of botany, that he did not long engage in the practice of medicine.

Dr. Gray, who was long associated with Agassiz, became Fisher professor of Natural History in Harvard in 1842. The science of botany was then in very much the same condition as Agassiz found that of zoology, though if anything, less was really known of it North America, with its varied climatic conditions, was an excellent field for botanical study. The work had hardly more than begun when Dr. Gray went to Harvard. He was a patient observer, as well as a good systematizer. He was able to interpret plant life and translate it into language comprehensible to the school boy as well as the college professor. The "Flora of North America" soon grew out of his labors and at once became the standard of all the botanists in this country, as it is to-day. The systematic "Herbarium"

erected at Harvard under the direction of Dr. Gray, within whose walls are arranged and classed thousands of botanical specimens from all parts of the world, is a veritable Mecca for American botanists, as well as for naturalists from every civilized country. The Harvard Botanical Gardens are also visited by thousands of students, and others who love the flowers for their beauty alone. Dr. Gray planned the gardens himself, and to them devoted much thought. As a medium of instruction, the gardens have ever proved an invaluable factor in the college course of study.

He continued his labors as instructor till 1873, since which time he has had the charge of the herbarium, and has devoted himself to its arrangement and to botanical studies. In the midst of these duties he was called to his rest. He died in Cambridge January 30, 1888.

The results of Prof. Gray's labors are shown in the numerous text-books and papers on botany written by him. The "Flora of North America" is the work of a lifetime, but his numerous text-books are equally valuable, for as text-books they may safely be regarded as superior to all others upon the same subject. Among these text-books we find "How Plants Grow," "How Plants Behave," "Lessons in Botany," "Manual of Botany," and others. Some of these are beautifully written, and so free from technical terms that they are read by children with great pleasure. Men of high attainments in knowledge are said to be unable to write things easily understood by children, but Prof. Gray is a very notable exception to this rule.

FLORICULTURE IN THE UNITED STATES.

No longer than thirty years ago it was rare to find any other than a foreigner engaged in commercial floriculture. These men had usually been private gardeners, who were mostly uneducated, and without business habits. But to-day the men of this calling compare favorably in intelligence and business capacity with any mercantile class.

Floriculture has attained such importance that it has taken its place as a regular branch of study in some of our agricultural colleges. Of late years, too, scores of young men in all parts of the country have been apprenticing themselves to the large establishments near the cities, and already some of these have achieved a high standing; for the training so received by a lad from sixteen to twenty, better fits him for the business here than ten years of

European experience, because much of what is learned there would prove worse than useless here. The English or German florist has here to contend with unfamiliar conditions of climate and a manner of doing business that is novel to him. Again he has been trained to more deliberate methods of working, and when I told the story a few years ago of a workman who had potted 10,000 cuttings in two inch pots in ten consecutive hours, it was stigmatized in nearly every horticultural magazine in Europe as a piece of American bragging. As a matter of fact this same workman, two years later, potted 11,500 plants in ten hours, and since then several other workmen have potted plants at the rate of a thousand per hour all day long.

* * * * *

But beneath these flitting fancies is the substantial and unchanging love of flowers that seems to be an original instinct in man, and one that grows in strength with growing refinement. Fashion may now and again condemn one flower or another, but the fashion of neglecting flowers altogether will never prevail, and we may safely look forward in the expectation of an ever increasing interest and demand, steady improvement in methods of cultivation, and to new and attractive developments in form, color and fragrance.—*Peter Henderson, in Garden and Forest.*

SPRAYING WITH ARSENICAL POISONS.

As to the use of Paris green, it is only twenty-two per cent arsenic; it is insoluble in water and soon sinks to the bottom. Arsenic is all that does any good. As it is the arsenic that is effective, what is the use of using anything else than arsenic, which costs only a few cents per pound. In quantities it can be bought for six, five, even three cents per pound. In California they use one pound to four hundred gallons of water. They say there is no advantage in a strong solution. A weak solution does not injure the foliage of the trees. Even one-half pound of the white arsenic to four hundred gallons of water would be effective. Let us make a perfect solution. Alkali will make arsenic completely soluble in water. Use one pound can of concentrated lye to four hundred gallons of water. One ounce of arsenic to a fifty gallon barrel of water—the expense is really nothing. Dissolve the lye in the water first. There is no chemical change in the arsenic. Dissolve the lye in cold

water. The only reason for using Paris green or London purple, instead of the white arsenic, is that they make a colored solution and lessen the danger of poisoning. Label your bottles of arsenic and the barrel in which you make the solution. Never handle poison without a label.

A pint of the water would contain one and one-fourth grains of arsenic. One-half a grain would be injurious. Keep everything labeled. It will not poison the skin, even if broken, in such a weak solution. There is no question that it kills the codling moth. We must spray about the last of May when the apples are the size of peas. The first brood is then on the fruit. Some one asks, "Would not killing the first brood stop the second?" No, *sir*. The moth is capable of long flight; your neighbors will breed it for you; you must take care of your own orchard. If you will spray the last week in May, the last week in June, the last week in July and the last week in August, you will have a crop of perfectly sound apples. The first moths lay their eggs just after the apples is out of bloom, but they do not all hatch out in a day; it takes nearly a month for all of them to hatch, the first brood lapping over on to the second; the second on the third, etc. You spray every four weeks and you will get all of the broods. Don't spray early fruit when it is nearly ripe. It was said when the spraying remedy was first discovered, that once or twice would be sufficient, but it is found better to spray four times in a year.

Now, the question arises, is there any danger of poisoning from the arsenic left upon the fruit, or taken in through the skin? In California they have no rain in the summer; we have rains to wash it off. One-half pound of arsenic to four hundred gallons of water is seven and one-half grains to the gallon. Allow two gallons to large trees, say twenty grains to the tree. Now, is it not a very reasonable estimate to say that nine-tenths of the spray falls upon the foliage and only one-tenth upon the fruit—two grains to a large tree. Say this tree has two grains, the first rain would wash nearly all of it away. At the time of gathering there would not be over two-tenths of a grain to ten bushels of apples. A man would have to eat five bushels of apples at one time to be in any danger! So, you see, the risk of poisoning is infinitesimal. When you pare the apples and cook them the danger is nothing. Four or five rains would wipe out every vestige of the arsenic.—*Dr. Goslin in Report of Mo. State Horticultural Society.*

ARSENICAL POISONS IN THE ORCHARD.

As is well known, about fifty per cent of the possible apple crop in the Western States is sacrificed each year to the codling moth, except in sections where orchardists combine to apply bands of straw around the trunks. But as is equally well known this is rather a troublesome remedy. At all events, in Illinois, Professor Forbes, in a bulletin lately issued from the office of the State Entomologist of Illinois, claims that the farmers of that State suffer an annual loss from the attacks of this single kind of insect of some two and three-quarters millions of dollars.

As the result of two years' experiments in spraying the trees with a solution of Paris green, only once or twice in early spring, before the young apples had drooped upon their stems, there was a saving of about seventy-five per cent of the apples.

The Paris green mixture consisted of three-fourths of an ounce of the powder by weight, of a strength to contain 15.4 per cent of metallic arsenic, simply stirred up in two and a half gallons of water. The tree was thoroughly sprayed with a hand force-pump, and with the deflector spray and solid jet-hose nozzle, manufactured in Lowell, Mass. The fluid was thrown in a fine mist-like spray, applied until the leaves began to drip.

The trees were sprayed in May and early in June while the apples were still very small. It seems to be of little use to employ this remedy later in the season, when later broods of the moth appear, since the poison takes effect only in case it reaches the surface of the apple between the lobes of the calyx, and it can only reach this place when the apple is very small and stands upright on its stem. It should be added that spraying "after the apples have begun to hang downward is unquestionably dangerous," since even heavy winds and violent rains are not sufficient to remove the poison from the fruit at this season.

At the New York Experimental Station last year a certain number of trees were sprayed three times with Paris green with the result that sixty-nine per cent of the apples were saved.

It also seems that last year about half the damage that might have been done by the plum weevil or curculio was prevented by the use of Paris green, which should be sprayed on the trees both early in the season, while the fruit is small, as well as later.

The cost of this Paris green application, when made on a large scale, with suitable apparatus, only once or twice a year, must, says Mr. Forbes, fall below an average of ten cents a tree.

The use of solutions of Paris green or of London purple in water, applied by spraying machines such as were invented and described in the reports of the national department of agriculture by the United States Entomologist and his assistants, have effected a revolution in remedies against orchard and forest insects. We expect to see them in careful hands, tried with equal success in shrubberies, lawns and flower gardens.—*A. S. Packard, Garden and Forest.*

FIGHTING APPLE WORMS.

Prof. S. A. Forbes delivered an address giving results of an elaborate series of experiments upon the effect of spraying apple trees with Paris green for the codling moth, which was illustrated by a series of colored diagrams showing graphically the results obtained. The conclusion, as given by Prof. Forbes, was this: That at least seventy per cent of the loss commonly suffered by fruit growers from the ravages of the codling moth can be prevented by thoroughly applying Paris green in a spray with water, once or twice in early spring, as soon as the fruit is fairly set, and not later than the time when the young apple turns downward on its stem. On motion of Mr. Augustine a vote of thanks was tendered the Professor for the careful work being done by him, and many members said they were going to spray their orchards.—*Prairie Farmer.*

Great care is necessary in the use of Paris green for the destruction of the codling worm. Prof. Braun in his paper at our winter meeting gave the direction for using it at the rate of a teaspoonful to the gallon of water. If the Paris green is pure this will be too strong and will seriously injure the foliage of the tree. One-half the quantity of the poison will make the liquid strong enough, and even then will sometimes injure the leaves. We give this subject prominence here as its use is increasing very largely in the State.

AN ARBOR DAY EXERCISE FOR SCHOOLS.

The department of Botany and Forestry, of the Agricultural College of Michigan, issued the past spring. "Hints for Arbor Day." It contains valuable suggestions for the observance of Arbor Day

by schools and granges. As many of our people are becoming interested in Arbor Day, the following gathered mostly from the bulletin above mentioned is published and respectfully dedicated to the schools and granges in Maine.

Let each pupil represent a tree in this convention. In case there are not pupils enough to do this, some of the older ones may act as speakers for two trees. It adds very much to the interest if each pupil can have the name of the tree he represents clearly printed and fastened to the clothing so as to be plainly seen. The pupils speaking for the evergreens could wear a sprig for identification. If the pupils sing readily more pieces can be selected by the teacher.

White Pine. Fellow trees of Maine, we have met at this time for the purpose of holding counsel together. The woodman's axe has nearly driven me from the forests, and my neighbors as well as myself are becoming alarmed at the situation. We have met here to learn the value we are to the world, and to take such action as may seem necessary to secure our protection and appreciation among men.

I will call upon Black Spruce to preside over this meeting. As many of you as are in favor of making Black Spruce chairman of this meeting will please say aye.

All. Aye.

White Pine. It is a unanimous vote, and Black Spruce will please to take the chair.

The Chairman. Fellow trees, I thank you for the honor you have conferred upon me, and will serve you to the best of my ability.

The object of this meeting is to consider whatever may be of interest to the trees and forests of Maine. For many years mankind have sought us from the forests and converted our trunks into lumber and fuel, while man and beast have enjoyed the shade we have offered them. The object of this meeting is of great importance to us all and we hope to gain much information and to hear from every one present. We have gathered from all parts of the State for this conference. As we should keep a permanent record of our proceedings, and as the newspapers will probably wish to publish our papers and discussions, I think a secretary will be needed to take the minutes of this meeting.

Beech. I nominate White Ash for secretary.

White Birch. I second the nomination.

Chairman. All in favor of this nomination will please say aye.—
Those who are apposed no.

All. Aye.

Chairman. The ayes have it, and White Ash is elected secretary.—
(She takes her place at a desk or table near the chairman.)

Chairman. Our musician, White Pine, has kindly arranged the
music for us. She sings only when the spirits move her. We may
know when that is by the peculiar swaying of her head. At the sway-
ing let us suspend business and listen. She moves—we will hear.

UNDER THE GREENWOOD TREE.

Under the greenwood tree
Who loves to lie with me,
And tune his merry note
Unto the sweet bird's throat,
Come hither, come hither,
Here shall he see
No enemy,
But winter and rough weather.

Who doth ambition shun,
And loves to live i' the sun,
Seeking the food he eats,
And pleased with what he gets,
Come hither, come hither,
Here shall he see
No enemy,
But winter and rough weather.

The Chairman. We are now ready for discussion. (Several
trees rising at once.)

The Chairman. White Oak has the floor.

White Oak. I am found in the southern and western counties
of the State. My wood is valuable for making handles for tools, and
for finishing the interior of houses. As a shade tree I am not admired
as much as I ought to be, for my foliage is beautiful and the children
are fond of the nuts I bear. The Oak family is a large one and
several of its members are found in Maine.

Beech. Upon my smooth, gray bark, many a heart history has
been carved. The poet Campbell tells it so beautifully.

"Thrice twenty summers have I stood,
Since youthful lovers in my shade,
Their vows of truth and rapture paid.
And, on my trunk's surviving frame,
Carved many a long forgotten name."

And here is another beautiful thing from Whittier :

"I have always admired the taste of the Indians around Sebago Lake, who, when their chief died, dug around the beech tree, swaying it down, and placed his body in the rent, and then let the noble tree fall back into its original place, a green and beautiful monument for a son of the forest."

I am found in all parts of Maine and am one of the best known.

Norway Pine. The famous A. J. Downing said: "There are no grander or more superb trees than our American oak. We are fully disposed to concede it the first rank among the denizens of the forest. As an ornamental object we consider the oak the most varied in expression, the most beautiful, grand, majestic and picturesque of all deciduous trees."

Red Oak. Poetry, history, mythology and romance abound in references to the oak. I should like to hear from our fellow trees some common quotations in reference to the oak.

White Ash. "The unwedgable and gnarled oak."

Black Ash. "The old oaken bucket."

Sugar Maple. "Jove's own tree that holds the woods in awful sovereignty."

Red Maple. "A goodly oak, whose boughs were mass'd with age."

Hemlock. "King of the woods."

Black Spruce. "Thy guardian oaks, my country, are thy boast."

Silver Maple. "The monarch oak, the patriarch of trees."

White Elm. "The oak for grandeur, strength and noble size, excels all trees that in the forest grow."

Hornbeam. "Tall oaks from little acorns grow."

Bass Wood.

"Woodman, forbear thy stroke!

Cut not its earth-bound ties;

Oh, spare that aged oak,

Now towering to the skies!"

White Birch.

"Behold yon oak,

How stern he frowns."

Hackmatack.

"Proud monarch of the forest!

That once a sapling bough,

Didst quail far more at evening's wrath

Than at the tempest now,

Strange scenes have passed, long ages roll'd

Since first upon thy stem,

Then weak as osier twig, spring set

Her leafy diadem."

Red Oak. I begin to feel my pride rising, and I hope, Mr. Chairman, you will give me a chance to recite a poem written in honor of our family.

The Chairman. We shall be glad to hear it.

Red Oak.

“A glorious tree is the old gray oak;
 He has stood for a thousand years—
 Has stood and frowned
 On the trees around,
 Like a king among his peers;
 As 'round their king they stand, so now,
 When the flowers their pale leaves fold,
 The tall trees around him stand, arrayed
 In their robes of purple and gold.

 “He has stood like a tower,
 And dared the winds to battle,
 He has heard the hail,
 As from plates of mail
 From his own limbs shaken, rattle;
 He has tossed them about, and shorn their tops,
 When the storm has roused his might,
 Of the forest trees, as a strong man doth
 The heads of his foes in fight.”

Black Spruce. This beautiful poem recited by Red Oak reminds me of an old saying of Dr. Holmes: He says. “I wonder if you ever thought of a single mark of supremacy which distinguishes this tree from those around it? The others shirk the work of resisting gravity, the Oak defies it. It chooses the horizontal direction for its limbs so that their whole weight may tell, and then stretches them out 50 or 60 feet so that the strain may be mighty enough to be worth resisting. You will find that in passing from the extreme downward droop of the branches of the weeping willow to the extreme upward inclination of those of the poplars, they sweep nearly half a circle. At 90 degrees the oak stops short; to slant upward another degree would mark infirmity of purpose, to bend downward weakness of organization.”

Poplar. This sounds scientific. I want to tell you something that begins with “Once upon a time.” Once upon a time the devil agreed with a man that he should have the latter's soul at the time when the oak leaves fell; but when he came to look at the oak in the autumn he found it still in leaf, nor did it part with its old leaves till the new ones began to sprout. In his rage and disappointment

he scratched the leaves so vehemently that they have been in consequence jagged ever since.

Chairman. These are good words for the Oak family. We will next listen to some music from the little birds—our very dear friends.

Chairman. We shall next hear from the Maples, one of our largest families.

Sugar Maple. I am a favorite ornamental tree. Poets of all ages have sung about the oak. I am no sweet singer of Maine, but I am possessed of sweetness. I claim to have made more boys and girls happy than any other tree. I have many changes in dress—wearing in spring the softest shade of every color, in summer the purest emerald, and in the autumn the most brilliant yellow. My wood is used for furniture, floors, and for finishing the interior of houses, and after the houses are finished few can warm them better than I.

Red Maple. I am often called Soft Maple, a name also applied to one of my sisters. I beautify the country in spring with early red blossoms, and in autumn my leaves are streaked with scarlet.

Silver Maple. My sister, Red Maple and myself are both called Soft Maple. I make a very rapid growth and am found by the side of streams. I am often planted as a shade tree, and in the far West many are planted for shelter-belts and for timber.

Bass Wood. I am a fine shade tree, my home a moist rich soil. My fragrant flowers furnish a great amount of excellent honey for the bees at a time when most other flowers have disappeared. My timber is soft, light and tough, and not apt to split, good for cabinet work, boxes, finishing, etc.

The Chairman. We will sing.

“LOVELY MAY.”

Lovely May, lovely May,
Decks the world with blossoms gay;
“Come ye all, come ye all,”
Thus the flowers call.
Sparkles now the sunny dale,
Fragrant is the flowry vale;
Song of bird, song of bird,
In the grove is heard.

Lightly pass, lightly pass,
 Thus the nodding meadow grass,
 Woodlands bright, woodlands bright,
 Make from winters night—
 Where the silver brooklet flows—
 Rippling softly as it goes,
 Will we rest, will we rest,
 In green mossy nest.

Chairman. We will next hear from the Ashes.

White Ash. I am a tall tree and have often been complimented for my usefulness. I have been told that I have a graceful top and beautiful pinnate leaves. My wood is heavy, hard, strong, coarse-grained, compact, and of a brown color, and is much used for cabinet ware, farm implements, and house finishing. I thrive in rich, moist soil.

Brown Ash. I thrive in swamps and along streams, and become a large tree. My wood is used for furniture, barrel-hoops, and baskets. When well cared for, I become one of the finest ornamental trees. For this purpose I have never been fully appreciated. The Ashes belong to the Olive family. We have been called musical, as in this quotation :

“Ye Ashes wild resounding o’er the steep,
 Delicious is your music to the soul.”

Chairman. Who will speak next? (a number rise.) Birch has the floor.

White Birch. I am a useful factor in the cause of education, though not now so commonly found in the school room as in former years. There are several of us Birches in Maine. The Alders are our cousins. Probably you are best acquainted with the Canoe Birch, whose white wood you see in spools and shoe pegs. It gives up its beautiful white dress without any injury to itself. Longfellow has made us a celebrated family in Hiawatha. He says of us :

“Give me of your bark, O, Birch tree!
 Of your yellow bark, O, Birch tree!
 Growing by the rushing river,
 Tall and stately in the valley!
 I a light canoe will build me,
 That shall float upon the river,
 Like a yellow leaf in autumn,
 Like a yellow water-lily!
 Lay aside your cloak O, Birch tree.
 Lay aside your white skin wrapper,
 For the summer time is coming,
 And the sun is warm in heaven,
 And you need no white skin wrapper.”

Chairman. Now let us hear from White Elm.

White Elm. I have been called queen of the forest, and stand without a rival at the head of the list of ornamental deciduous leaved trees. I claim this rank on account of hardiness, rapid growth, and the graceful and majestic beauty of my drooping branches. We are very proud of our Massachusetts relative under whose venerable shade Washington first took command of the Continental army, July 3, 1775. How the affection of every lover of his country clings around that tree! What care has been taken of it, what marks of esteem have been shown it by the citizens of Cambridge, may be judged by those who have seen it standing, as it does, in the centre of a great public thoroughfare, its trunk protected by an iron fence from injury by passing vehicles, which for more than a century have turned out in deference to this monarch of the Revolution.

Chairman. Let us all repeat the lines of N. S. Dodge in praise of the queen of the forest.

“Then hail to the Elm! the green-topped Elm,
And long may his branches wave,
For a relic is he, the gnarled old tree,
Of the times of the good and brave—”

Chairman. Let us hear from White Pine now.

White Pine. I am one of the tallest and largest trees in Maine, or rather I was in the past. The lumbermen have cut down the larger part of the old pine trees, but the State of Maine is called the “Pine Tree State” in honor of my importance in the past. In Europe, where some of my number have been introduced, they often call me Weymouth Pine. My leaves are long, light green and in clusters of five. As a long-lived and beautiful tree for ornamenting rural grounds and parks, I take a high rank, while an immense amount of valuable lumber is cut from my wood.

Chairman. We have another cone-bearing tree in attendance. I call on Hemlock.

Hemlock. I have been called by students in art and botany and horticulture “the most beautiful coniferous hardy tree yet known.” I grow to a good height and acquire a large size. My evergreen leaves have delicate tints, my young branches droop gracefully. As a timber tree I do not claim the highest honor. My bark is valuable for tanning leather.

Chairman. Black Spruce is a sister, and we must listen to her.

Black Spruce. I abound in the forests of Maine. The boys and girls have always searched my trunk for gum, but not all the gum

you find in the market is real spruce gum. I am the most important lumber tree in Maine. Hundreds of lumbermen go into the woods in winter, cut down the spruce trees, haul them to the water, and then, when the snow melts away, float them down to the saw mills, where they are sawed into timber, boards, clapboards, &c. Within a few years my wood has been largely used in the manufacture of white paper.

Chairman. Basswood has promised to tell us something about the way in which the trees are planted.

Basswood. The squirrels eat many nuts, but carry a portion to some distance in every direction, when they plant one or two in a place. It may be the thought of the squirrel to return at some future time of need, but his bump of locality is not well developed, or he has laid up more than he needed. At all events some of the nuts are allowed to remain where he planted them. In this way he is a benefit to the trees, and pays for the nuts which he eats. He has not lived in vain, for he is a tree-planter and believes in arboriculture. His arbor days come in autumn, and he needs no gubernatorial message to stimulate his work.

Poplar. Many of our trees and shrubs produce a fleshy fruit or berry. Among them are the mountain ash, service berry, cherry and others. Many of these, when ripe, are rendered conspicuous by brilliant colors. The fruits are eagerly sought by the partridge, deer, bears, other animals and the birds. In most cases the seeds of such fruits are protected by a very fine covering, and are not digestible. They are sown broadcast by wild animals, under circumstances most favorable for germination. The birds, too, belong to the society of tree planters.

Chairman. Many of the trees in the forest bear small winged seeds, and others bear tufted seeds; these are borne away by the winds till they finally come to the ground, where they will sprout and grow if left alone. Will Red Maple tell us how trees should be transplanted?

Red Maple. In taking up a tree, whether large or small, do not twist it about so as to break or bend the roots abruptly. Get all the roots you can afford to, remembering that a tree will not grow without roots.

When out of the ground keep the roots constantly covered with soil, moss, damp straw or something else. The roots are far more sensitive to dry air than are the parts above the ground. No one

need wonder that trees carted into town with short roots exposed to dry air, often fail to grow or lead a precarious life for years. Study the structure and the physiology of a tree and treat it as one who always makes everything thrive which he cares for.

Chairman. How shall we care for the trees after planting?

Apple Tree. To set a tree so as to ensure its thrifty growth, place it but little deeper than it was while growing. Have the soil well pulverized and pack it closely about the tree.

After all this trouble, do not court disappointment in the slow growth or in the death of a favorite tree, but dig or rake the ground every week or two, all summer for three to five years for a distance of four feet or more each way from the tree. If this is impracticable, place a mulch of something covering the space above mentioned.

Chairman. After planting, trees sometimes becomes too thick. What shall we do?

Pear Tree. A tree, like a child, is a living, organized being and keeps changing as long as life lasts. It is not best merely to set as many trees as we expect to remain for a life time, but plant them more thickly with a view to removal. Here is where 99 out of 100 fail. They do not keep an eye on the growth and trim or remove trees until they have crowded and damaged each other beyond recovery. In most instances, a few large, well developed trees should grow where many small ones were planted years before. It needs courage and judgment to remove some favorite trees that others may continue to spread and make a symmetrical growth.

Chairman. Next will follow something in reference to the flowers of trees.

Wild Cherry. With rare exceptions, our trees bear flowers which are inconspicuous. The elms and the maples produce flowers in spring before the leaves appear. Most have the staminate and pistillate flowers on different parts of the tree or on different trees. The wind or gravity carries the pollen to the pistil, so there is no need of sweet odors or a gay display of flowers to attract bees and butterflies and moths to carry the pollen. Compensation is well displayed in nature. If the tree has not gorgeous or fragrant flowers, it has a large size and often a beautiful form.

Chairman. We should learn to love trees and to associate them with the generous hand who planted and cared for them.

Mountain Ash. I will tell you something which was written by Washington Irving: "There is something noble, simple and pure in

a taste for trees. It argues, I think, a sweet and generous nature to have this strong relish for the beauties of vegetation, and this friendship for the hardy and glorious sons of the forest. There is a grandeur of thought connected with this part of rural economy. It is worthy of liberal, free-born, and aspiring men. He who plants an oak looks forward to future ages, and plants for posterity. Nothing can be less selfish than this. He cannot expect to sit in its shade nor enjoy its shelter; but he exults in the idea that the acorn which he has buried in the earth shall grow up into a lofty pile, and shall keep on flourishing and increasing and benefiting mankind long after he shall have ceased to tread his paternal fields."

Chairman. We will hear what O. W. Holmes says on this subject.

White Elm. Dr. O. W. Holmes says: "I have written many verses, but the best poems I have produced are the trees I planted on the hillside which overlooks the broad meadows, scalloped and rounded at their edges by loops of the sinuous Housatonic. Nature finds rhymes for them in the recurring measures of the seasons. Winter strips them of their ornaments and gives them, as it were, in prose translation, and summer reclothes them in all the splendid phrases of their leafy language.

"What are these maples and beeches and birches but odes and idyls and madrigals? What are these pines and firs and spruces but holy rhymes, too solemn for the many hued raiment of their gay deciduous neighbors?

"As you drop the seed, as you plant the sapling, your left hand hardly knows what your right hand is doing. But nature knows, and in due time the power that sees and works in secret will reward you openly."

Chairman. This concludes what we had on the program for this convention.

Hemlock. I move we have some more music and then adjourn.

Chairman. If there be no objections we shall have the music.

Chairman. This convention stands adjourned until again convened by the proper authorities.

HOW THE STATE AGRICULTURAL SOCIETY OBSERVED
ARBOR DAY.

In reply to a letter of inquiry addressed to Hon. Rufus Prince, President of the Maine State Agricultural Society, we copy the following which shows a zeal worthy the imitation of others in Maine :

SOUTH TURNER, June 4, 1888.

BRO. KNOWLTON: Yours at hand. I have been intending to publish a list of the donors of trees which we have set on the State Fair Park. My call was quite liberally responded to. We have set one hundred forty-five maple and elm trees in different places on the park, and I feel proud of having inaugurated the move and believe it will result in making a great addition to the beauty of the place.

Very truly,

RUFUS PRINCE.

APPLES WITHOUT SUGAR.

A family known to us, who at one time thought cooked apples hardly eatable unless sweetened or spiced, or both, were persuaded this winter to try them baked in the skins, and without introduction of sugar or any other foreign element which makes the fruit chemically quite different from the perfect condition in which nature left it. The consequence is, they have come to prefer the new way, and proved that its nutrient and hygienic effects are much more marked and satisfactory. Now we find a well-known English horticulturist expressing himself at considerable length to the same purpose on the leading page of "*The London Garden*:"

"The sugar we add to apples only robs them of their specific and delicate aroma, reduces their quality, and renders them insipid and commonplace. For example, cook a Beaufin or a French Crab in sugar, and you have a pulpy mass, or pieces of colored matter that may be apple, rhubarb or Swede turnip, as the eater may fancy. But cook a Ribston, Blenheim, Cox's Orange, or Newton Pippin, or even King of the Pippins or Cockle Pippin, and each will be found not only most agreeably sweet, but so specifically distinct as to form a different dish. The finest apples for cooking are, without doubt, the Ribston and the Newton Pippins at their best, and both are not only greatly deteriorated, but half-spoilt in flavor by any additions of foreign sugar. I have long held the opinion that the best eating

apples are also the best cooking ones. Convenience, the possession of kitchen varieties, and the perversity of cooks in heavily dredging all apples with sugar frequently overthrow one's convictions, and go far to ruin the best apple pies and puddings. As a fact, the popular custom of adding paste and sugar to most cooked apples is largely responsible for the loss of most of their richest and most delicate aroma, as well as the source of their unwholesomeness to so many consumers. Butter, batter, drippings, and sugars of the rankest, roughest character, but little superior to molasses—why should these be allowed to destroy all the most delicate and delicious flavors of our choicest apples? No; if we wish to enjoy the latter in perfection let us either roast them in their skins, or skin and core and place in a pipkin, as you did the Newton Pippins, and enjoy a feast of apples pure and simple, and free from the suspicion of paste, treacle and fat."

The writer mentions a lady of refined taste who was so determined to have apple in purity that she would seldom eat one except when roasted or baked entire;

"Beginning with the old Keswick Codlin, she went on to the New Hawthornden, Cellini, Alexander, King of the Pippins, Cox's Orange Pippin, Ribston, Calville Blanche, and wound up with Court Pendu Plat. All were enjoyed in their season, but the feast of aromatic pleasure culminated in the Calville Blanche grown on the bottom of peach walls. The rule for all was little or no sugar, and that paste ruined the flavor of apples."

Finally, heads of families are advised against providing sweets to be added to this king of fruits, a precaution which would have the double benefit of "opening the eyes of the people to the enormous consumption of sugar in reducing all apples to a sort of dead level of mediocrity—the most wholesale deterioration and destruction of flavor;" and, in the end, promote the growth of only the best varieties, regardless of the present absurd market preference for bright color of skin.—*N. Y. Tribune.*

RED RASPBERRY CULTURE.

Favorable soil and climate aside, the principal requisites for success in profitable red raspberry culture are a good market at no great distance, and a good supply of pickers in the neighborhood. It is a fruit that does not stand shipping well, being apt to become mushy, which renders it unsalable.

A gravelly soil, inclining to sand, is the best for this crop, although it can be grown successfully in most any soil, except a stiff clay, if it be thoroughly underdrained and worked. It is not necessary that the soil be very rich at the start, for manure can be applied to rather better advantage after the first season's growth.

The plants should be set one and one-half to two feet apart, in rows five and one-half to six feet apart. Great care must be taken when setting the plants not to allow the roots to dry at all, as they are very easily injured. It is not advisable to plant on a drying, windy day, unless the roots are puddled out of water. Root exposure in a wind for but ten minutes may work injury to cause the difference between success and failure. A good way of planting is to put the spade in the ground eight or ten inches, and move it back and forth so as to leave a hole two inches wide and as long as the width of the spade. A boy can follow with the plants, placing one in each hole, drawing the soil in with his foot and treading it firmly on each side of the plant with his heels.

At the end of the first season the plants should be heavily mulched with manure, which will serve the double purpose of fertilizing the plants and smothering any weeds that escape the hoe. If well planted and cared for, a light crop can be picked the following year. No pinching back should be done in the summer, as that causes the canes to send out laterals which do not ripen, but all canes should be cut back in winter or early spring from six to eighteen inches, according to the strength of the canes and the amount of manure given them; the stronger the canes and the more manure used the less cutting back is necessary.

If well cared for and kept clean, a red raspberry plantation can be left for a number of years. For marketing, this berry should invariably be put in pint baskets, in which shape they will usually bring considerably more than enough to pay for all extra cost of the baskets. The crates should hold from twelve to thirty-six pints, to suit different customers, and must be made so the baskets will fit snugly to avoid chucking. The berries should be picked every day to command the highest prices, and should be placed in the retailer's hands immediately after picking if practical. A temporary packing shed should be erected near the middle of the patch for convenience in packing, keeping accounts of pickers, etc.—*Popular Gardening*.

THE NORTHERN SPY APPLE.

For some reason the crop of Baldwin apples hereabouts is this year a light one. The Northern Spy, blossoming several days later, has set well, and a pretty large proportion of the apples marketed have been of this variety. I think the Northern spy bids fair to become a greater favorite than ever in this vicinity, as its requirements become better known. It is a native of this part of western New York, originating about forty years ago as a seedling in Bloomfield, Ontario county, just a little southeast of the Monroe county line. Take it altogether, I do not know an apple that does better for those who have strong, rich land, and understand the proper modes of managing the orchard. It is some advantage, I think, to have a variety which originated near here, provided it has as many good qualities as has this.

When it was first introduced by Rochester nurserymen, about 1845-50, there was a great furore to get trees and grafts. The appearance, quality and keeping habits of the apple were so strongly in its favor, that for several years trees or grafts of this sort were a little dearer than others. There were in those days great numbers of natural fruit orchards, and wherever these were regrafted with Spys the old tree became rejuvenated, and very soon bore large crops of extra fine fruit. It was the success of these regrafted natural trees that for some years gave the Northern Spy its greatest popularity.

Its erect habit and vigorous growth are, I think, responsible alike for the Northern Spy's success under some conditions, and failure in others. The tree, when young, runs too much to wood if either cultivated highly or manured heavily. This retards bearing, and so long as the tree spires upward it will prove a shy bearer. But let it once produce a crop, let its long limbs be weighted down, and the tree is more certain of a crop than most other varieties. It usually produces a light crop one year and a heavy one the next. Its lateness in leaving and blossoming protects this variety from loss by late frosts, though this is an evil rarely encountered in this section of New York so near Lake Ontario.—*American Cultivator*.

HORTICULTURE—PRACTICAL AND THEORETICAL.

To study much a fact called chemistry,
To learn earths, acids, alkalies and all,
To know all seeds, and name all bugs you see—
Is Horticulture Theoretical.

To reason much about the cause of things,
To make analyses and classify
All buds and bodies, leaves, legs, scales and wings,
And give them titles that may pass for high ;

To talk for weeks how much of this and that
Is necessary that a plant may grow ;
What rainfall, dewfall, sun, wind, cloud are pat,
And then tell others what you do not know ;

To raise within a busy cranium
At least six crops before you plant at all ;
To write long letters and for papers some,
Is Horticulture Theoretical.

To feel the sunshine and morning dew,
To smell the ground in the first days of spring,
To have for company yourself and you,
To hear the robins and the blue birds sing ;

To hoe and harrow, and to put plain dirt
On living seeds, and then to wait awhile ;
To be afield in democratic shirt,
And use your muscles in plebeian style ;

To take all nature in your hardened hands,
Train trees, train vines, plant, prune, protect and pluck,
Believe in self and in your fertile land.
And have more faith in living than in luck ;

And then at last to sit in welcome style,
With golden fruits heaped up in royal state,
Offered by beauty, with a gracious smile,
To strangers dwelling in the city gate ;

To taste, to eat, to feel the throb of pride,
To rise rejoicing from the festival,
To clasp new friends with old ones by your side,
This, this is Horticulture Practical.

— *Prof. J. C. Ridpath, at American Horticultural Society.*

HONESTY.

Let us away with all stuffings and facings, with all deceptive coverings, with all undersize packages, with the packing of all green, half-grown, knarly and worm-eaten fruit in any kind of packages. If we must pack it, put it on top where it will tell its own story. Let us do this, and we shall find it will pay in money, pay in the plaudits we shall win from all men and in our own self-respect and integrity of soul. I should say here, and I cheerfully do say, that I believe that the California fruit packers are generally far less open to criticism in this matter of straight packing than are the majority of Eastern growers. You cannot afford to pay freight on trash two or three thousand miles. Yet there is some room for improvement in the selection and grading of fruits from this pre-eminent horticultural State. It cannot be too often or too earnestly impressed upon fruit men everywhere that to secure the best results the most scrupulous pains must be taken not only in growing fruit properly, but in careful handling, thorough grading and unflinching honesty in packing. The man with a high standard, well worked up to, is the man who will come out best in the race.—*Parker Earle, at American Horticultural Society.*

COLD STORAGE.

Information on cold storage was asked of the eastern members, and Parker Earle was asked to respond. He stated that it had been a common impression that after fruits of any kind had been subjected to the cold—tender ones especially—that their keeping qualities were nearly destroyed and they decayed soon in a warm climate. This was negatived by his own experience, as he found that fruit could be sent more safely after being cooled down to a low temperature than when not so treated. He used the car itself as a cooling place and the fruit was loaded directly from the field. He found that this held true not only for strawberries but for raspberries. When they were cooled below the dew point, moisture collected upon the fruit, but he found that it did not essentially injure the fruit, as the moisture soon evaporated. A refrigerator car simply holds the fruit in obedience, so that organic action is held back for a time.

When the fruit is packed in a firm condition it does not essentially change when taken out, although, when the fruit is put in over ripe, it will not keep long.—*Parker Earle, at American Horticultural Society.*

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Pomological and Horticultural Societies.

Below is given a list of those Pomological and Horticultural societies and their Secretaries, in the different States, with which our Society is in correspondence, and with which it exchanges Reports and Transactions. We should be very glad to extend the list so as to embrace all societies of this nature in every State in the Union.

American Pomological Society. Charles W. Garfield, Secretary, Grand Rapids, Michigan.

Department of Argiculture of the United States. Hon. Norman J. Colman, Commissioner, Washington, D. C. Hon. Henry E. Van Deman, Chief of Division of Pomology.

American Horticultural Society. W. H. Ragan, Secretary, Greencastle, Indiana.

Society of American Florists. Edwin Lonsdale, Secretary, Philadelphia, Penn'a.

Massachusetts Horticultural Society. Robert Manning, Secretary, Boston, Mass.

Western New York Horticultural Society. P. C. Reynolds, Secretary, Rochester, N. Y.

New Jersey State Horticultural Society. E. Williams, Secretary, Montclair, N. J.

Pennsylvania Fruit Growers' Society. E. B. Engle, Secretary, Waynesboro', Penn'a.

Ohio State Horticultural Society. George W. Campbell, Secretary, Delaware, Ohio.

Wisconsin State Horticultural Society. H. C. Adams, Secretary, Madison, Wisconsin.

Indiana Horticultural Society. C. M. Hobbs, Secretary, Bridgeport, Indiana.

State Horticultural Society of Michigan. Charles W. Garfield, Secretary, Grand Rapids, Michigan.

Maine State College Agricultural Experiment Station. W. H. Jordan, Director, Orono, Maine.

Illinois State Horticultural Society. A. C. Hammond, Secretary, Warsaw, Illinois.

Iowa State Horticultural Society. G. B. Brackett, Secretary, Denmark, Iowa.

Missouri State Horticultural Society. L. A. Goodman, Secretary Westport, Missouri.

Kansas State Horticultural Society. G. C. Brackett, Secretary, Lawrence, Kansas.

Nebraska State Horticultural Society. Samuel Barnard, Secretary, Table Rock, Nebraska.

State Board of Horticulture of California. A. H. Webb, Secretary, San Francisco, California.

Minnesota State Horticultural Society. S. D. Hillman, Secretary, Minneapolis, Minn.

Columbus Horticultural Society. W. S. Devol, Secretary, Columbus, Ohio.

Colorado State Horticultural Society. Nelson Millett, Secretary, Denver, Col.

Massachusetts Agricultural College. Hon. Henry H. Goodell, President and Librarian, Amherst, Mass.

New York State Agricultural Experiment Station, Geneva, N. Y.

Entomological Department of the State of Illinois. Prof. S. A. Forbes, Entomologist, Springfield, Ill.

Ohio Agricultural Experiment Station. N. S. Townshend, Director, Columbus, Ohio.

Department of Fruit Pests, California State Board of Horticulture. W. G. Klee, Inspector of fruit pests, Sacramento, Cal.

North Carolina State Horticultural Society. S. Otho Wilson, Secretary, Vineyard, N. C.

California State Board of Viticultural Commissioners. Chas. A. Wetmore, Chief Viticultural Officer, Sacramento, Cal.

Fruit Growers' Association of the Province of Ontario. L. Woolverton, Secretary, Grimsby, Ontario.

Montreal Horticultural Society. E. J. Maxwell, Secretary, Montreal, P. Q., Canada.

Entomological Society of the Province of Ontario. Edmund Baynes Reed, Secretary, London, Ontario.

Fruit Growers' Association of Nova Scotia. C. R. H. Starr, Secretary, Port Williams, N. S.

Ontario Department of Agriculture, Entomological Division. James Fletcher, F. R. S. C., Entomologist, Ottawa, Canada.

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